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Economic Commentary

by Charles F. Haywood*

A key element in the "consensus outlook" for 1987 is that the performance of the U.S. economy will be critically affected by the behavior of exports and imports. The prevailing expectation is that domestic production and employment will be stimulated by an expansion of U.S. exports and by a decline in U.S. imports, or at least by a slowing in the pace of increase of imports.

The widely accepted basis for such expectation is the decline in the international value of the dollar since early 1985. Between early 1982 and early 1985 the U.S. dollar's international value increased by approximately 40 percent, according to the "effective exchange rate" calculated by the International Monetary Fund. Between early 1985 and late 1986 the dollar's value, so measured, fell by approximately 40 percent. That is, the dollar is now back down to the international value it had just prior to the sharp slide of the U.S. trade balance into a series of record deficits. However, it remains to be seen whether the dollar's decline has been of sufficient magnitude and duration to lower the foreign prices of U.S. exports to levels again competitive in world markets while increasing the dollar prices of foreign goods coming into the U.S. to the point where domestic goods are again competitive.

In 1981, the year before the dollar began its rocket ride, U.S. merchandise exports totaled $233.7 billion, and merchandise imports into the U.S. were $273.3 billion. The resulting foreign-trade deficit of $39.6 billion was regarded as large but understandable in view of the high price of oil. Four years later, i.e., in 1985, the deficit was $148.4 billion, with the price of oil less than in 1981. The $108.9 billion deterioration in the trade deficit between 1981 and 1985 reflected an increase of $88.3 billion in imports and a decline of $20.5 billion in exports.

During the first half of 1986, imports ran at an annual rate of $384.1 billion, and exports were $216.2 billion on an annual-rate basis. The foreign trade deficit widened to $167.9 billion. For the third quarter of 1986 imports increased further, to an annual rate of $387.0 billion while exports fell to an annual rate of $211.3 billion. The deficit thus plunged to another new record, $175.7 billion on an annual-rate basis. Small improvements over the past two months provide, at best, only faint confirmation that the foreign-trade deficit has hit bottom.

It should therefore be recognized that the expectation of an increase in U.S. exports and a narrowing of the trade deficit in 1987 is a matter of deduction. Given that devaluations of a nation's currency usually stimulate exports and dampen imports, and given that the international value of the dollar has declined since early 1985, it may seem reasonable to conclude that U.S. exports will increase and that imports will begin to decline or at least show slower growth. But that conclusion presumes that some important "other things remain the same." An important "other thing" that has not remained the same is the global economy. A relatively slow pace of economic growth in the rest of the world in 1986 has dampened foreign demand for U.S. exports. Moreover, a slowing in the pace of inflation in the rest of the world has made it more difficult for U.S. exports to regain their competitiveness. Also significant is the fact that foreign producers have shown considerable ability to remain competitive while the value of the dollar has been declining.

Indicative of the ability of foreign producers to keep their goods selling at competitive prices in the U.S. is the decline that has occurred in the GNP implict price deflator for imports since 1981. This "price index" for imports of goods and services was 101.6 in 1981, on a base of 100 for 1982. For 1985 the index was 95.4, and in the third quarter of 1986 it was 90.0. Much, if not all, of the decline in 1986 was due to the drop in oil prices, but even taking that into account the index suggests that foreign goods will not easily give way to domestic goods in U.S. markets.

The decline in the implicit deflator also implies that the "real" growth in imports has been greater than indicated

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Charles F. Haywood is Chief Economist, Center for Business and Economic Research, University of Kentucky. He directs the Center's Economic Analysis and Financial Policy Studies Program. Dr. Haywood is also Professor of Finance, College of Business & Economics, University of Kentucky.

It is with a great deal of sadness that I announce that Margaret Adams will be leaving the Center for Business & Economic Research and with it the editorship of *Review & Perspective*. As Assistant Director of the Center for Business & Economic Research, she has been head of the Statistical Information Service and Manager of the Kentucky Economic Information System. She has also edited *Review & Perspective* since 1979. In addition, she has been absolutely central to all of the economic research which we in the Center for Business & Economic Research have produced over the last eight and one-half years. Margaret cannot be replaced. She has extremely high standards when it comes to editing *Review & Perspective* and her analytical mind will be greatly missed. We wish her well.

She is moving to Washington, D.C., to a position at the National Archives. Once again, I wish to thank her for the tremendous effort that she has put into *Review & Perspective* and for making it the fine publication it is today. We wish Margaret the best of luck in her new position and hope that she can perhaps continue to contribute her expertise about the Kentucky economy to *Review & Perspective* in the future.

—H. Brinton Milward, Director
Center for Business & Economic Research

News & Notes

In the Summer issue of *Review & Perspective* we announced the availability of revised Kentucky annual personal income estimates, and related data, 1969-85, and the forthcoming availability of revised quarterly state-level estimates for the period 198001 through 198602. The quarterly revisions have been issued and the Kentucky estimates are accessible through the Kentucky Economic Information System (KEIS). All of these revisions are a by-product of the comprehensive revisions of the national income estimates which were issued a year ago.

The primary source agency for all of these data, the Bureau of Economic Analysis (BEA) at the U.S. Department of Commerce, now supplies each of the members of its "User Group" with the data stored on microcomputer diskettes. The Center for Business and Economic Research at the University of Kentucky is an "official" Kentucky recipient of BEA data and thus we receive these data with the expectation that they will be redistributed to others. Traditionally, CBER has done this by making the data available through the KEIS and in its publications; these services will continue.

In addition, however, CBER can redistribute the data on diskette; other data stored in the KEIS can also be distributed on diskette. Because diskettes allow the storage of a very large volume of data, the data CBER now receives from BEA is for all 50 states, not just for the U.S. and Kentucky. Therefore, CBER staff can prepare diskette copies of BEA data for Kentucky, for the U.S., for all of the states, or for selected states or groups of states. The annual data include files with: the components of personal income and total earnings, by industry; wage and salary earnings, by industry; disaggregated transfer payments; disposable income and disaggregated tax and nontax payments; employment for all full- and part-time jobs (including proprietors), by industry; and employment of all full- and part-time wage and salary jobs, by industry. The quarterly data are in two files: the components of per-

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This publication provides current information concerning the Kentucky economy. It is a forum for the publication of short expository articles, analyses of some aspect of the Kentucky economy, forecasts of the Kentucky economy, and tables of selected data chosen as indicators of developments in the Kentucky and national economies. The publication also sometimes includes information about enhancements to the Kentucky Economic Information System (KEIS).

Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Kentucky Metropolitan vs. Nonmetropolitan Areas

by James R. McCabe*

This article examines the trends and cyclical economic changes of Kentucky metropolitan areas in relationship to its nonmetropolitan areas.[1] The analysis of the metropolitan areas is based only upon data for the Kentucky counties in the MSAs and does not cover the non-Kentucky counties included in the MSAs.

The years 1974 and 1979 were selected as years for comparison of the selected economic data because they were peak years in the business cycle; 1982 was selected because it was the trough year of the most recent national recession. Thus comparison of these years to 1984 or 1985 allows for analysis of both trend and cyclical gains in the current recovery.

As shown in Table 1, the share of personal income in metropolitan areas as a percent of personal income in the entire state has declined slightly since 1974. In 1974 the metropolitan areas accounted for 54.6 percent of Kentucky's personal income; in 1984 the level was 53.4 percent. The major change within the metropolitan areas themselves was that the Lexington MSA gained the two percentage points lost by the Louisville MSA.

Analysis of the distribution of total jobs, presented in Table 2, indicates virtually no shift in the concentration of jobs since 1974. Metropolitan areas employed 52.3 percent of all those employed in Kentucky in 1974 and registered a 52.0 percent share in 1984. From the mid-1970s to 1982, the concentration of jobs in metropolitan areas declined slightly, but then regained most of the loss in share in the current recovery.

A major factor in the change in relative importance of the metropolitan areas is the slower growth in manufacturing jobs in the 1970s and the much sharper absolute decline in manufacturing jobs in the metropolitan counties than that experienced by the nonmetropolitan counties in the 1980s (see Table 3). Furthermore, the rebound in manufacturing jobs in Kentucky has been greater than that for the rest of the nation during the most recent recovery, 1982-84, and the rate of growth in the nonmetropolitan counties exceeded that of the metropolitan areas. Manufacturing jobs in the metropolitan counties in 1984 represented 54.8 percent of all such jobs throughout the state, noticeably below the 1974 share of 60.0 percent and more than a percentage point below the 56.2 percent recorded in 1982.

Table 2
Concentration of Total Jobs in Kentucky

	1974	1979	1982	1984
Total Jobs,* Kentucky (thousands)	1,477	1,641	1,590	1,658
MSA Areas (Kentucky Counties Only)	52.3%	51.8%	51.3%	52.0%
Cincinnati	5.2	5.6	5.6	5.8
Clarksville-Hopkinsville	3.2	2.9	3.0	2.9
Evansville	1.1	1.2	1.2	1.3
Huntington-Ashland	2.8	3.1	2.9	2.7
Lexington	10.7	10.9	11.2	11.7
Louisville	26.8	25.7	24.9	25.0
Owensboro	2.5	2.5	2.5	2.6

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System. Calculations by the author.

*Total Jobs is an estimate of all full- and part-time wage and salary employees and all proprietors.

Clearly, the change in share or concentration ratios has not been the same throughout all metropolitan areas. The Louisville metropolitan counties were the location for 36.0 percent of manufacturing jobs in 1974, but only 29.2 percent in 1984. Despite the overall decline in manufacturing jobs in the 1974-84 decade, Henderson County (Evansville MSA) registered a significant absolute increase and the Lexington MSA gained 1.2 percentage points in its relative share of manufacturing jobs. On a national and regional basis, the substitution of jobs in service-producing industries for jobs lost in manufacturing is well documented.

Table 1
Concentration of Total Personal Income in Kentucky

	1974	1979	1982	1984
Total Personal Income, Kentucky (millions of dollar)	$15,426	$25,853	$33,449	$38,095
MSA Areas (Kentucky Counties Only)	54.6%	53.6%	53.8%	53.4%
Cincinnati	8.3	8.2	8.0	8.2
Clarksville-Hopkinsville	1.9	1.7	1.6	1.6
Evansville	1.2	1.3	1.3	1.3
Huntington-Ashland	3.0	3.5	3.3	2.2
Lexington	9.5	10.3	11.3	11.7
Louisville	27.9	26.0	25.8	25.8
Owensboro	2.6	2.7	2.7	2.7

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System. Calculations by the author.

Service-producing industries include transportation, communication, and utilities; wholesale and retail trade; finance, insurance, and real estate; services; and govern-

*James R. McCabe is Associate Professor of Finance, and Chair, Department of Economics and Finance, University of Louisville.

ment. In Kentucky, the transition to a service-producing economy has been accompanied by a shift in the proportion of manufacturing jobs in the nonmetropolitan areas.

Table 3
Concentration of Total Manufacturing Jobs in Kentucky

	1974	1979	1982	1984
Total Manufacturing Jobs, Kentucky (thousands)	295.3	301.6	251.4	263.1
MSA Areas (Kentucky Counties Only)	60.0%	58.1%	56.2%	54.8%
Cincinnati	4.3	4.7	4.5	4.4
Clarksville-Hopkinsville	1.3	1.5	1.3	1.4
Evansville	1.3	1.6	1.7	2.0
Huntington-Ashland	4.1	4.4	4.3	4.1
Lexington	10.1	10.6	10.6	11.3
Louisville	36.0	33.0	31.4	29.2
Owensboro	2.8	2.3	2.5	2.4

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System. Calculations by the author.

The data in Table 4 indicate that while overall there has been growth in Kentucky service-producing jobs, the metropolitan areas have consistently been the location for about 57 percent of them. Variation in this concentration since 1974 has been very slight, indicating that growth rates for jobs in the service-producing industries have been similar over time for both the metropolitan and nonmetropolitan counties. In other words, despite their greater loss of manufacturing jobs, the metropolitan counties have not gained in relative importance as the location of jobs for the service-producing industries.

Table 4
Concentration of Total Service-Producing Jobs in Kentucky

	1974	1979	1982	1984
Total Service-Producing Jobs, Kentucky (thousands)	899.2	1,033.9	1,042.8	1,105.5
MSA Areas (Kentucky Counties Only)	57.1%	56.3%	56.7%	57.0%
Cincinnati	6.3	6.6	6.7	7.0
Clarksville-Hopkinsville	4.4	3.8	3.9	3.7
Evansville	1.0	1.1	1.1	1.1
Huntington-Ashland	2.7	2.6	2.7	2.6
Lexington	11.4	11.7	12.0	12.3
Louisville	28.8	28.0	27.6	27.7
Owensboro	2.6	2.5	2.6	2.6

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System. Calculations by the author.

If a greater concentration of manufacturing jobs is now found in the nonmetropolitan areas but the nonmetropolitan counties have not gained in share of total jobs or lost share in service-producing industries, where has the offsetting adjustment occurred since 1974? The concentration of construction jobs in the metropolitan areas and nonmetropolitan counties has remained fairly stable from 1974 to 1984. Thus the offset to the relative gain in manufacturing jobs in the nonmetropolitan areas has been the loss of jobs in mining and agriculture.

Service-producing employment often occurs as the result of base or export industries increasing shipments out of the region, or the state in this case. During the 1974 to 1979 period, when manufacturing jobs grew more rapidly in the nonmetropolitan counties, the number of jobs in the service-producing industries expanded in these same counties at a faster pace than in the metropolitan counties. Since 1979, however, expansion of jobs in the service-producing industries has been relatively greater in the metropolitan counties. In fact from 1979 to 1982, there was even a slight absolute decline in service-producing jobs in the nonmetropolitan counties. The slower growth in service-producing jobs since 1982 in the nonmetropolitan areas, in part, can be attributed to the sharp declines in mining employment over those two years.

As shown in Table 5, the average unemployment rate for the metropolitan areas has remained below the average for the state of Kentucky and, therefore, below that of the nonmetropolitan counties as well. Even though growth in employment in both the metropolitan and nonmetropolitan counties since 1974 has been quite comparable, the disparity between respective unemployment rates has increased. In particular, in 1974 the Kentucky unemployment rate averaged 4.5 percent versus 4.0 percent for the metropolitan counties. By 1985, the state averaged 9.5 percent, compared to 7.6 percent for the metropolitan counties.

Table 5
Unemployment Rates
Kentucky: Metropolitan and Nonmetropolitan Areas

	1974	1979	1982(P)*	1982(R)*	1983	1985
Kentucky	4.5%	5.5%	10.6%	10.6%	11.7%	9.5%
Metropolitan	4.0	4.6	9.7	9.2	9.6	7.6
Nonmetropolitan	5.1	6.4	11.5	12.0	13.7	11.4

Source: Kentucky Cabinet for Human Resources through the Kentucky Economic Information System. Calculations by the author.

*Preliminary data (P) for 1982 are comparable to earlier years. Revised data (R) for 1982 are comparable to later years.

The divergence in the 1974 and 1985 metropolitan and nonmetropolitan unemployment rates partially can be explained by the revision by the Bureau of Labor Statistics (U.S. Department of Labor) in its methodology for estimating the labor force and numbers of unemployed, and therefore the unemployment rates. Until revised estimates of the labor force and those unemployed are made for the years prior to 1982, county data for 1982 and after are based on the new methodology and are not comparable to figures for earlier years.

Adjustment in the methodology increased the 1982 labor force in the metropolitan counties by about 1,800 persons and reduced the number of unemployed by nearly 2,000, producing a smaller rate of unemployment: 9.2 percent instead of 9.7 percent. In the revision, the nonmetropolitan counties gained the 2,000 unemployed and lost 1,800 from their labor force, generating an increase in the nonmetropolitan unemployment rate from 11.5 percent to 12.0 percent. (See Table 5.)

The divergence between the metropolitan and nonmetropolitan unemployment rates continued to increase in 1983, resulting in a spread of 4.1 percentage points—only slightly more than the spread that was recorded for 1985. Much of this additional difference can be attributed to the decline in mining and agriculture jobs in the nonmetropolitan counties.

The reduction in the labor force in the nonmetropolitan areas since 1982 does not appear to be consistent with population changes. While population growth in both metropolitan and nonmetropolitan counties has been at

a slower rate in the 1980s than in the 1970s, the distribution of population shown in Table 6 indicates the increase in population in the nonmetropolitan counties has been at a slightly faster rate than in the metropolitan counties. Perhaps urban workers, once they have been unemployed for a period of time, are more likely to move to another location to work than their rural counterparts, who instead cease to be in the labor force.

Table 6
Concentration of Kentucky Population

	1970	1980	1985
Total Population, Kentucky	3,221,000	3,661,000	3,726,000
Metropolitan	48.0%	45.8%	45.7%
Nonmetropolitan	52.0	54.2	54.3

Source: Urban Studies Center, University of Louisville; calculated from data stored in the Kentucky Economic Information System.

Comparison of Tables 1, 7 and 8 reveals a strong similarity between concentration of and trends in personal income, Kentucky individual income taxes, and state sales and use tax receipts. Income tax receipts from residents of metropolitan areas as a percent of total individual income tax receipts fell from 57.5 percent in fiscal year 1974 to 55.5 percent by fiscal year 1982, but then picked up slightly by fiscal year 1984 to 56.3 percent. The metropolitan concentration ratio for personal income fell from 54.6 percent in 1974 to 53.4 percent by 1984. Consistent with the individual income tax payments and share of personal income, sales and use taxes from the metropolitan counties declined, relatively, from 1974 to 1982, but then gained some of their share by 1984. In the case of each of these variables, the loss of metropolitan share is primarily attributable to the relative decline in activity in the Louisville MSA, constrained by the steady pickup in activity in the Lexington and Evansville MSAs.

In conclusion, from 1974 to 1984 the nonmetropolitan counties in Kentucky have increased in relative economic importance in spite of the fact that many of these counties have also been impacted adversely by declines in agriculture and mining. The number of manufacturing jobs, statewide, has declined since 1979 and the metropolitan counties have lost a larger percentage of these jobs than have the nonmetropolitan counties. However, the relative share of jobs in the service-producing industries has remained quite steady. Because of the sharp decline in manufacturing jobs, the cyclical downturns in 1980 and 1981-1982 continued the shift in relative importance between metropolitan and nonmetropolitan counties.

Changes in the Louisville MSA impact substantially the statewide metropolitan figures because of Louisville's size

Table 7
Concentration of Kentucky Total Individual Income Tax Receipts

	1974	1979	1982	1984
Total Individual Income Tax Receipts, Kentucky (thousands of dollars)	$228,560	$454,511	$593,408	$697,686
Metropolitan	57.5%	55.7%	55.5%	56.3%
Nonmetropolitan	42.5	44.3	45.5	43.7

Source: Calculations of data from the Kentucky Revenue Cabinet.

Table 8
Concentration of Kentucky Total Sales and Use Tax Receipts

	1974	1979	1982	1984
Total Sales and Use Tax Receipts, Kentucky (thousands of dollars)	$343,111	$572,705	$659,541	$743,368
Metropolitan	58.3%	57.2%	55.1%	56.9%
Nonmetropolitan	41.7	42.8	44.9	43.1

Source: Calculations of data from the Kentucky Revenue Cabinet.

relative to the rest of the metropolitan areas. The metropolitan areas most constant in expansion during the period of study were the Lexington and Evansville MSAs. Through the first two years of recovery since the last recession in 1982, overall economic gains have been greater in the metropolitan areas even though the number of manufacturing jobs has increased at a faster pace in the nonmetropolitan counties. The loss of relative share since 1974 for the metropolitan counties, however, has been limited. In fact, of the economic series covered in this study, more than 50 percent of statewide activity still continues to be concentrated in the 19 counties included in the Metropolitan Statistical Areas.

Acknowledgment

The author is grateful to Buck Sanders for his aid in the statistical calculations.

Note

[1] MSAs designated by the U.S. Office of Management and Budget that include Kentucky counties are Cincinnati (Boone, Campbell and Kenton), Clarksville-Hopkinsville (Christian), Evansville (Henderson), Huntington-Ashland (Boyd, Carter and Greenup), Lexington (Bourbon, Clark, Fayette, Jessamine, Scott and Woodford), Louisville (Bullitt, Jefferson, Oldham and Shelby), and Owensboro (Daviess).

Growth in Total Personal Income

	% Change 1985, 2nd Qtr to 1986, 2nd Qtr	% Change 1986, 1st Qtr to 1986, 2nd Qtr
United States	5.6%	1.4%
Southeast Region	5.6	.9
Alabama	4.0	-.1
Arkansas	4.3	-1.4
Florida	6.1	1.6
Georgia	7.3	1.1
Kentucky	3.7	1.1
Louisiana	0.0	-1.3
Mississippi	8.3	2.2
North Carolina	6.9	1.3
South Carolina	6.7	1.0
Tennessee	5.5	.8
Virginia	6.7	.9
West Virginia	3.2	.4

Source: Bureau of Economic Analysis, U.S. Department of Commerce, *News—State Personal Income*, BEA 86-50, October 1986.

Kentucky Revenues: Fiscal Year 1986-87

by James A. Street and Christopher T. Baker*

Introduction

Biennial budget estimates for the General and Road Funds are initially prepared by the Revenue Cabinet by October 15 of each odd-numbered year. These estimates are then ratified by the 15th working day of each Kentucky General Session, and with appropriate modifications to account for legislative changes, become the revenue basis for the enacted budget. The enacted estimate for fiscal year 1986-87 (FY 87) for the General Fund is $2,991.6 million and the Road Fund is $629.5 million.

General Fund revenues for 1985-86 fell about $26 million short of the estimated $2,762.6 million. Most of the shortfall occurred in the April-June quarter as the combination of a near zero inflation rate with lower than anticipated growth in employment produced less than projected revenues. The Road Fund, which had been projected at its 1984-85 level, produced a slight overage primarily due to the addition of several accounts to the fund that had not been included in the estimate.

The first fiscal quarter of 1986-87 produced results similar to the last fiscal quarter of 1985-86. It is estimated that the General Fund, which had a growth rate of 0.5 percent over the comparable quarter of 1985-86, had a shortfall of about $44 million. The Road Fund continues to increase at the anticipated pace. The projected rate of growth in state personal income of 6.7 percent that was prepared in January, 1986 for fiscal 1986-87, is now estimated at around 5.7 percent. Based on revenues received to date and projected economic growth, the General Fund enacted budget estimate of $2,991.6 million for 1986-87 has been reduced by $88.5 million. The Road Fund remains at $629.5 million.

Economic Outlook

The outlook for the state economy for the next three quarters is a return to a modest growth pattern for the state's total personal income, an increase in the inflation rate, and an increase in the level of employment.

U.S. total personal income increased at an annual rate of 2.9 percent for the third quarter of 1986, as estimated by Data Resources Incorporated (DRI). This is far below the rate anticipated in the January, 1986 outlook. Data is not available for the third quarter growth rate for Kentucky's personal income; however, the state's growth rate usually follows the national trend. This would account for the unsatisfactory performance of the General Fund tax receipts for the first quarter of the fiscal year. DRI is forecasting a 5 percent growth rate for U.S. personal income for the remainder of FY 87, while Thalheimer Research Associates (TRA) estimate a 6.8 percent level of growth for Kentucky personal income for the next three quarters. If these increased growth rates are realized we should see a return to a modest level of growth in General Fund tax receipts between 7 and 8 percent.

The consumer price index (CPI) remained relatively constant for the first half of 1986 indicating a zero inflation rate. This was largely due to the drastic drop in crude oil prices and the resulting decline in pump prices. The non-energy components of GNP showed an inflation rate of about 4 to 5 percent for this period. The growth rate for the CPI is estimated at 3.4 percent by DRI for the third quarter of 1986, indicating that inflation may return to its underlying rate in the 4 to 5 percent range by 1987.

The employment situation in Kentucky has shown an improvement in recent months and reached a level of 1,582,400 residents working at the end of August. This is a 2.2 percent increase over the level reported in August, 1985. DRI is forecasting a 2 percent level of growth for U.S. civilian employment for the remaining three quarters of FY 87, while the TRA projected growth rate for the state's employment is in the 3 to 4 percent range for this period.

The Revenue Cabinet's tax forecasting models rely on projected growth rates for the state's total non-agricultural wage and salary employment (EMP), the state's personal income (PI), and the inflation rate indexed by the growth rate of the consumer price index (CPI). An attempt was made to avoid the extremes of being overly pessimistic or optimistic in setting values for these assumptions. As shown below, the assumptions for the growth rates of these three variables used by the Revenue Cabinet fall between those given by DRI and TRA.

DRI Forecast

CPI	4.1%
USEMP	2.3%
USPI	4.5%

TRA Forecast

CPI	2.2%
KYEMP	3.5%
KYPI	6.3%

Revised Rates Used by the Kentucky Revenue Cabinet

CPI	3.1%
KYEMP	3.1%
KYPI	5.7%

*James A. Street is the Executive Director and Christopher T. Baker is Economist, Office of Revenue Estimating and Economic Analysis, Kentucky Revenue Cabinet.

These assumptions are consistent with recent trends in consumer confidence indicated by the Michigan survey on consumer sentiment. Their second quarter 1986 survey indicates the continuation of consumer confidence in the economy at very favorable levels. This is due mainly to recent declines in interest rates and a feeling that the inflation problem has been controlled. Favorable consumer attitudes such as these should insure a healthy housing industry and growth in the durable goods sector. Underlying these attitudes is the recent downward trend in interest rates. The Federal Reserve has lowered the discount rate four times this year and it now stands at 5.5 percent while the prime rate has dropped to 7.5 percent.

Revised General Fund Estimate for 1986-87

The basic assumption underlying this revision is that the state economy will return to the growth pattern originally projected for the fiscal year. This will provide state personal income growth of around 6.0 percent per year and a General Fund growth rate of around 7.7 percent which includes the effects of the 1985 Special Session tax adjustments. This means that growth will not be sufficient to overcome the losses sustained to date, but will prevent further losses from the projected budget estimates.

The revised estimate of $2,903.1 million is $88.5 million less than the enacted budget estimate. Revisions to the major General Fund taxes are shown in Table 1. As can be seen, the largest shortfalls are in the sales and use tax and individual income tax. These shortfalls are primarily related to the decrease in the employment growth and in the nominal rate of growth in state personal income. The sales and use tax is also affected by an anticipated decrease in audit collections of about $18.0 million from the record collections of 1985-86. The other shortfalls are in coal severance and oil production taxes, which are related to the decline in energy prices. The revision also anticipated some positive changes. Unfortunately, these are small. The increase in the property taxes is primarily in the intangibles area. Inheritance tax collections are also slightly higher than anticipated. The insurance premium taxes which are included in the "other" category, have been increased to reflect the increased value of premiums.

Some of the revised rates of growth may appear out of balance. Part of this is caused by audit collections. The estimate anticipates a shift in audit collections from sales and use to corporate income taxes. This brings down the rate of growth for sales and use taxes while pushing the rate of growth for corporate income taxes up. Oil production receipts have been reduced because of declining prices and production. The large decline in natural gas taxes is the same as shown in the January estimate. This results from the one time payment of escrow receipts resulting from a price increase. The corporate income and license taxes are also unchanged. The large increase shown is caused by the impact of the first full year of the 1985 Special Session adjustments in the corporate income and license taxes.

This revision results in a growth rate of 6.1 percent over the actual collections for 1985-86. The growth rate for the remaining nine months of the fiscal year is 7.7 percent when compared to the final nine months of 1985-86. This rate of growth, which includes the effects of the 1985 Special Session, is consistent with a projected increase in state personal income of approximately 6 percent.

No specific adjustments were made concerning the federal Tax Reform Act of 1986 for this fiscal year. There should be a small increase resulting from the decrease in federal tax deductions that would be partially offset by an increase in Individual Retirement Account (IRA) deductions. The loss of the Investment Tax Credit effective January 1, 1986 for federal tax purposes, has probably dampened economic growth to some extent.

Table 1
Kentucky Revenue Cabinet
General Fund Revised Estimate (October 1986)

Tax Types	Actual FY86	Percent Change FY85-FY86	Enacted Budget Estimate for FY87	Percent Change[1]	October 1986 Revised Estimate for FY87	Dollar Difference[2]	Revised Growth Rate, FY86-FY87
	(millions)		(millions)		(millions)	(millions)	
Sales and Use	$ 881.09	7.4%	$ 943.59	7.1%	$ 909.00	$ -34.59	3.2%
Individual Income	819.89	5.6	929.52	13.4	890.00	-39.52	8.6
Corporate Income	233.52	10.5	307.00	31.5	307.00	0.00	31.5
Coal Severance	198.53	- 4.3	222.00	11.8	205.00	-17.00	3.3
Total Property	254.52	8.4	243.66	- 4.3	247.20	3.54	- 2.9
Corporate License	41.53	115.3	59.50	43.3	59.50	0.00	43.3
Oil Production	7.70	- 19.1	9.50	23.4	4.50	- 5.00	-41.6
Natural Gas Severance	16.72	216.9	8.40	-49.8	8.40	0.00	-49.8
Mineral Severance	6.35	8.7	6.30	- 0.8	6.30	0.00	- 0.8
Inheritance	54.95	7.8	45.49	-17.2	47.00	1.51	-14.5
Investment Receipts	32.91	13.0	29.20	-11.3	29.20	0.00	-11.3
All Other General Fund	188.04	7.1	187.44	- 0.3	190.00	2.56	1.0
Total	$2,735.75	7.5%	$2,991.60	9.4%	$2,903.10	$ -88.50	6.1%

Notes

[1]Percent change is between enacted budget estimate for FY87 and actual receipts for FY86.
[2]Dollar difference is revised estimates for FY87 (October 1986) less enacted budget estimate for FY87.

selected indicators OF ECONOMIC A

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	July 1986	August 1986	Sept. 1986	Qtr. III 1986	% Chg. 86-II 86-III	% Chg. 85-III 86-III
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ALL ITEMS (NEW DEF)	328.00	328.60	330.20	328.93	0.75	1.65
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, FOOD AND BEVERAGES	312.20	314.60	315.10	313.97	1.56	4.02
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, HOUSING (INCL RENTAL EQUIV)	361.50	362.40	363.70	362.53	0.92	2.77
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, APPAREL AND UPKEEP	203.20	207.00	212.10	207.43	0.66	0.74
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, TRANSPORTATION	304.70	301.30	302.20	302.73	-1.02	-5.61
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, MEDICAL	434.80	437.50	439.70	437.33	1.73	7.64
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ENTERTAINMENT	274.40	278.70	275.30	274.80	0.65	3.28
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, OTHER	344.90	346.40	353.30	348.20	1.76	6.13
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, SPECIAL INDEX: ENERGY	366.50	358.60	360.60	361.90	-2.19	-16.71
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL COMMODITIES	297.70	297.20	297.70	297.53	-0.42	-3.17
PRODUCER PRICE INDEX, ALL FINISHED GOODS	288.00	287.50	287.50	287.67	-0.28	-1.73
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	282.70	283.10	282.70	282.83	-0.24	-2.76
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	305.00	304.50	306.10	305.20	-0.54	-4.05
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	230.30	232.40	296.20	252.97	-7.17	-15.42
PRODUCER PRICE INDEX, CRUDE MATERIALS	278.00	275.50	275.50	276.33	-0.12	-7.48
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	233.60	236.30	231.90	233.93	3.62	3.89
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, SPOT(1967=100)	432.80	430.20	430.10	431.03	-0.28	-1.43
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, CONTRACT(JUNE76=100)	150.60	150.60	150.50	150.57	-0.33	-2.71
PRODUCER PRICE INDEX, ALL CONSTRUCTION MATERIALS	309.60	309.10	310.10	309.60	-0.09	-0.34
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	25.97	26.26	25.76	26.00	-0.45	-4.13
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	59.92	60.08	59.21	59.74	-1.22	-4.41
AVG PRICE FOR ELECTRICITY, PER 500 KWH	42.14	42.16	42.16	42.15	3.25	1.75
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	0.75	0.73	0.74	0.74	-11.87	-28.68
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	0.89	0.85	0.86	0.87	-6.22	-29.00
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	0.82	0.78	0.80	0.80	-6.07	-30.03
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	0.89	0.84	0.86	0.86	-6.25	-29.50
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.04	1.00	1.01	1.02	-5.62	-25.06
LABOR FORCE (SEASONALLY ADJUSTED, MILLIONS OF PERSONS)						
LABOR FORCE, TOTAL (INCL RES ARMED FORCES)	119.74	119.88	119.94	119.85	0.41	2.27
LABOR FORCE, CIVILIAN (EXCL RES ARMED FORCES)	118.07	118.18	118.22	118.16	0.41	2.33
EMPLOYMENT, RESIDENT ARMED FORCES	1.67	1.70	1.72	1.69	0.45	-1.49
EMPLOYMENT, TOTAL CIVILIAN	109.88	110.15	109.89	109.98	0.69	2.59
EMPLOYMENT, AGRICULTURE	3.11	3.05	3.12	3.09	-2.79	0.53
EMPLOYMENT, NONAGRICULTURAL	106.77	107.11	106.77	106.88	0.79	2.65
UNEMPLOYED, CIVILIAN, TOTAL	8.19	8.03	8.33	8.18	-3.13	-1.04
UNEMPLOYMENT RATE, TOTAL LABOR FORCE	6.80	6.70	6.90	6.83	-3.53	-3.24
UNEMPLOYMENT RATE, CIVILIAN LABOR FORCE	6.94	6.79	7.05	6.92	-3.53	-3.30
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG, ANNUAL RATE)	NA	NA	NA	4240.70	6.38	5.23
U.S. REAL GROSS NATIONAL PRODUCT (B 82$) (% CHG, ANNUAL RATE)	NA	NA	NA	3686.40	2.76	2.32
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)(% CHG, ANNUAL RATE)	3492.90	3500.50	3511.60	3501.60	2.12	5.37
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	179.40	179.10	179.50	179.33	0.73	5.57
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1977=100)	124.90	125.10	125.30	125.10	0.59	0.86
AVERAGE PRIME RATE CHARGED BY BANKS ON SHORT-TERM BUSINESS LOANS	8.16	7.90	7.50	7.85	-8.79	-17.33
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	5.84	5.57	5.19	5.53	-9.73	-22.10
PRIVATE HOUSING UNITS AUTH. 17000 PERMIT-ISSUING PLACES (SADJ THOU)	1759.00	1673.00	1603.00	1678.33	-27.96	-5.66
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	572.93	579.55	588.93	588.93	4.03	13.30

CTIVITY

KENTUCKY DATA

	July 1986	August 1986	Sept. 1986	Qtr. III 1986	% Chg. 86-II 86-III	% Chg. 85-III 86-III
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1711.80	1711.90	1721.20	1714.97	2.11	1.53
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1553.80	1582.00	1600.10	1578.63	3.68	2.35
EMPLOYMENT, AGRICULTURAL	67.30	76.80	81.40	75.17	13.83	0.99
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1486.50	1505.20	1518.70	1503.47	3.22	2.42
UNEMPLOYMENT RATE	9.20	7.60	7.00	7.95	-14.38	-8.50
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1270.60	1274.60	1288.30	1277.83	0.13	2.28
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	38.40	38.40	38.00	38.27	-2.13	0.44
EMPLOYMENT, CONTRACT CONSTRUCTION	67.70	67.60	66.30	67.20	4.84	11.57
EMPLOYMENT, TOTAL MANUFACTURING	251.50	251.50	252.00	251.67	-0.34	-1.71
EMPLOYMENT, MANUFACTURING, DURABLE	135.90	136.20	136.60	136.23	-0.99	-2.64
EMPLOYMENT, MANUFACTURING, NON-DURABLE	115.60	115.30	115.40	115.43	0.44	-0.57
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	67.20	67.70	68.00	67.63	1.05	0.59
EMPLOYMENT, WHOLESALE & RETAIL TRADE	303.50	304.10	305.40	304.33	1.22	1.74
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	61.70	62.20	61.50	61.80	2.37	5.46
EMPLOYMENT, SERVICES (SIC 70-80)	250.40	253.00	256.80	253.40	-0.21	2.45
EMPLOYMENT, CIVILIAN GOVERNMENT	224.90	224.70	235.00	228.20	-2.20	5.29
EMPLOYMENT, STATE & LOCAL GOVERNMENT	184.40	184.50	195.26	188.05	-2.61	7.32
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	38.20	39.30	39.60	39.03	-0.09	0.34
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DUR	38.70	40.40	40.70	39.93	-0.75	0.93
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	37.60	38.00	38.20	37.93	0.71	-0.26
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	9.92	9.86	9.93	9.90	0.61	3.92
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	10.47	10.44	10.52	10.48	0.00	3.08
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	9.27	9.15	9.19	9.20	1.73	5.46
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	378.94	387.50	393.23	386.56	0.52	4.27
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	405.19	421.78	428.16	418.38	-0.75	4.04
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	348.55	347.70	351.06	349.10	2.44	5.17
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	9.87	11.18	10.87	31.92	3.19	6.06
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	2.54	2.87	2.91	8.31	-20.99	-15.36
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	17.04	16.95	16.86	16.95	7.26	8.10
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	436.22	449.18	458.59	448.00	-0.29	-9.13
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	25.60	26.50	27.20	26.43	-7.03	-15.91
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	16.13	15.18	15.79	47.10	*	-5.76
HOUSING (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-	240.50	269.00	263.90	773.40	30.25	28.60
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, 1 UNIT	835.00	717.00	669.00	2221.00	-2.33	17.02
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, 1 UNIT	50.56	45.18	43.08	138.83	-3.40	30.54
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, TOTAL	1465.00	1270.00	1245.00	3980.00	-2.31	28.43
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, TOTAL	58.51	56.04	54.19	178.75	-5.60	31.65
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	83.50	77.39	90.96	251.85	*	0.43
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	11.28	10.00	15.43	36.71	*	6.18
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL	196.89	182.43	249.13	628.45	*	0.47
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	77.53	71.70	73.81	223.04	*	-1.18
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	66.65	68.83	78.78	214.27	*	-1.04
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	6.25	3.61	41.19	51.05	*	8.76
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	35.76	50.16	48.38	134.29	*	19.12
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	16.34	22.30	27.03	65.67	*	33.38
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	14.15	16.32	17.62	48.09	*	12.51

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 17,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

Revenue Estimates on Target in 1986

by Lawrence K. Lynch*

Economic activity, in both the nation and Kentucky, continued to be sluggish throughout fiscal year 1985-86 (FY 86), resulting in slow growth in state government tax receipts. Revised estimates of total Kentucky personal income in current dollars showed growth of just 3.9 percent during the fiscal year.[1]

The following article reviews Kentucky State Government tax receipts for FY 86, compares the receipts to the estimate made by the author for the Kentucky Legislative Research Commission,[2] and presents a revised estimate for fiscal year 1986-87 (FY 87). The new FY 87 estimate also incorporates the effects of legislation enacted by the 1985 Extraordinary Session and 1986 Regular Session of the Kentucky General Assembly.

normal pattern, June receipts for the Individual Income tax would have been about $9.0 million less.

If FY 86 General Fund receipts are adjusted for these two unexpected factors, the total would be $2,718.8 million, just $3.3 million, or 0.1 percent, above the author's estimate. Table 1 reports the adjusted figures along with the unadjusted data.

The author overestimated Transportation Fund receipts by $6.1 million, or 1.3 percent. The major source of error was Motor Fuels tax receipts, which were overestimated by $5.5 million.

Current forecasts of the U.S. economy by Chase Econometrics,[3] Data Resources, Inc. (DRI),[4] and Thalheimer Research Associates (TRA, Inc.)[5] were

Table 1
Receipts vs. Lynch Estimate, Fiscal Years, 1985-86
(Millions of Dollars)

Tax Source	FY 85 Receipts	FY 86 Receipts	Percent Change	Lynch Estimate for FY86	Percent Error
Sales and Use	$ 820.3	$ 881.1	7.4%	$ 862.7	- 2.1%
Adjusted*		872.1	6.3	862.7	- 1.1
Individual Income	776.6	819.9	5.6	806.9	- 1.6
Adjusted*	---	810.9	4.4	806.9	- 0.5
Corporation Income	211.3	233.5	10.5	248.4	+ 6.4
Corporation License	19.3	41.5	115.0	41.8	+ 0.7
Coal Severance	207.4	198.5	- 4.3	212.0	+ 6.8
Other Natural Resources	20.6	30.8	49.5	30.0	- 2.6
Property	234.7	254.5	8.4	249.7	- 1.9
Inheritance	51.0	54.9	7.6	48.1	-12.4
Other General Fund	204.7	222.1	8.5	215.9	- 2.8
Total General Fund	$2,545.9	$2,736.8	7.5%	$2,715.5	- 0.8%
Adjusted*	---	$2,718.8	6.8%	$2,715.5	- 0.1%
Motor Fuels	$ 195.7	$ 194.1	- 0.8%	$ 199.6	+ 2.8%
Motor Vehicle Usage	149.1	158.3	6.2	158.2	- 0.1
Weight-Distance	29.7	30.5	2.7	30.6	+ 0.3
Other Transportation Fund	68.6	70.7	3.1	71.3	+ 0.8
Total Transportation Fund	443.1	453.6	2.4	459.7	+ 1.3
Less County Share	9.8	10.0	2.0	10.0	0.0
State Transportation Fund	$ 433.3	$ 443.6	2.4%	$ 449.7	+ 1.4%

Source: Receipts are from the Kentucky Revenue Cabinet. The estimates and other calculations were made by the author.
*See text for discussion of adjustments.

As Table 1 indicates, the author's General Fund estimate of $2,715.5 million was under the actual figure by $21.3 million, or 0.8 percent. However, the actual General Fund total was inflated by two factors which were not anticipated in the author's revenue estimate. First, an unusually high Sales and Use tax audit-based payment of about $9.0 million was received in May 1986. Second, Individual Income tax refund payments were unusually low in June 1986 compared to previous years, and unusually high in July 1986. Had refund payments followed the

reviewed and compared. The consensus is clear: most economists expect the U.S. economy to continue to grow slowly in real terms over the next year, with a slight acceleration of inflation. The principal reasons that growth will be slow are that consumers have too much debt to expand consumption spending rapidly; that investment disincentives and uncertainties associated with tax reform will retard growth in business investment spending; and that pressures to reduce the Federal government deficit will lead to less-expansionary fiscal policy.

However, a recession is not expected because the lower-valued dollar will (eventually) help revive the stagnating manufacturing and agricultural sectors by stimulating exports and curtailing imports; inventories are

*Lawrence K. Lynch is Professor of Economics and Chairman of the Division of Business Administration and Economics at Transylvania University, Lexington. He also serves as tax consultant to the Kentucky Legislative Research Commission.

Table 2
Lynch Revised Revenue Estimate, General Fund and Transportation Fund
Fiscal Year 1986-87
(Millions of Dollars)

Tax Source	Actual Receipts FY 86	Revised Estimated Receipts FY 87	Percent Change	February 1986 Lynch Estimate for FY87
Sales and Use	$ 881.1	$ 906.1	2.8%	$ 901.8
Individual Income	819.9	876.2	6.9	878.9
Corporation Income	233.5	288.3	23.5	305.8
Corporation License	41.5	58.4	40.7	58.4
Coal Severance	198.5	207.7	4.6	223.4
Other Natural Resources	30.8	22.9	-25.6	22.9
Property	254.5	256.8	0.9	246.7
Inheritance	54.9	59.5	8.4	51.8
Other General Fund	222.1	231.7	4.3	227.2
Total General Fund	$2,736.8	$2,907.6	6.2%	$2,916.9
Motor Fuels	$ 194.1	$ 297.0	53.0%	$ 203.6
Motor Vehicle Usage	158.3	168.3	6.3	169.7
Weight-Distance/Truck Fee	30.5	102.7	236.7	32.8
Other Transportation Fund	70.7	73.1	3.4	74.2
Total Transportation Fund	453.6	641.1	41.3	480.3
Less County Share	10.0	36.7	267.0	10.0
State Transportation Fund	$ 443.6	$ 604.4	36.2%	$ 470.3

Source: Same as Table 1.

generally not at excessive levels; and monetary policy is expansionary, keeping downward pressure on interest rates. Inflation has been temporarily suppressed by falling oil prices; now that oil prices have stabilized, inflation is expected to return to its underlying rate of 4.5 to 5.0 percent.

The Kentucky economy, with its relatively heavy reliance on coal mining, manufacturing, and agriculture, has been growing more slowly than the U.S. economy. For example, according to revised estimates, real personal income in the U.S. grew at an average annual rate of 2.9 percent over the four quarters ending in June 1986; Kentucky experienced only a 1.0 percent growth in real personal income.[6] Because of continued sluggish economic growth in the national economy, and because Kentucky's economic performance is expected to continue to lag the nation, TRA, Inc. has reduced its forecast of Kentucky's nominal (current dollar) personal income growth for FY 87 from 7.30 percent (which was used in the author's February 1986 revenue estimate) to 6.33 percent. The new TRA, Inc. estimate was the basis for the revised revenue estimate.

The method used to prepare the revised revenue estimate was the revenue elasticity model,[7] which was completely updated and reestimated in the Fall of 1985. Growth rates of personal income and real Gross National Product (RGNP) were revised downward slightly, and actual receipts for FY 86 were used as the baseline.

In addition, adjustments were made for several factors which will affect FY 87 receipts. First, where audit receipts were unusually high in FY 86 (as was the case with the Sales and Use and Other Natural Resources taxes), the FY 86 revenue base was reduced to include only the recurring portion of audit receipts. Second, the effects of the tax changes enacted by the 1985 Extraordinary Session of the Kentucky General Assembly were adjusted out of the FY 86 tax base and then added back into the FY 87 estimates. Third, the effects of tax legislation enacted by the 1986 regular session of the General Assembly were added to or subtracted from the FY 87 estimates, as necessary. Finally, the FY 87 estimate of Individual Income tax receipts was reduced to account for the unusually high amount of refunds paid in July, 1986.

Two important assumptions which underlie the revised revenue estimate are:

1. *Individual income tax refund payments will return to their normal pattern in FY 87.* If refunds are delayed, actual receipts for FY 87 will be higher—at the expense of future fiscal years.

2. *Federal tax reform will have no impact on Kentucky's FY 87 receipts.* The impact is likely to occur in fiscal years beginning with 1987-88 (FY 88).

Table 2 presents the revised revenue estimates, and compares them to the author's estimate prepared for the General Assembly in February 1986. Despite a number of revisions and adjustments, the revised General Fund total is nearly identical to the total estimated in February: the net change is a downward revision of $9.3 million, or 0.3 percent (which can be entirely accounted for by the extra Individual Income tax refunds held for payment in July 1986). The Transportation Fund, on the other hand, has been revised substantially upward, due to the effects of legislation enacted by the 1986 General Assembly (an increase in the gasoline tax rate of 5 cents per gallon, or 50 percent; and the creation of a new permit-fee system for trucks).

Notes

[1]Revised estimates released October 1986 from the Bureau of Economic Analysis, U.S. Department of Commerce.

[2]This estimate was discussed in the author's "Revenue Growth Slows in 1985," *Kentucky Economy: Review & Perspective*, Vol. 9, No. 3, Fall 1985, pp. 5, 11-12, and was revised slightly in February 1986.

[3]Lawrence Chimerine, *Executive Summary, U.S. Macro*, Chase Econometrics, New York, July 29, 1986.

[4]Data Resources, Inc., *U.S. Forecast Summary*, September 1986.

[5]Thalheimer Research Associates (TRA, Inc.), *A Quarterly Forecast of the National and State Economies, 1986.2-1988.2*, Lexington, Kentucky, September 15, 1986.

[6]Bureau of Economic Analysis, U.S. Department of Commerce through the Kentucky Economic Information System (KEIS), released October 1986.

[7]The revenue elasticity model was described in June 1980 (Vol. 4, No. 2) issue of this publication.

News & Notes

(Continued from page 2)

sonal income and total earnings, by industry; and wage and salary earnings, by industry. The following charges will apply.

The standard CBER Statistical Information Service charge of $25 plus direct costs, and the cost of the diskette(s) (if not supplied by the requestor), will be invoiced for all requests. For a copy of the entire set of annual (1969-85) or quarterly (198001-198602) data for all 50 states and the U.S., in BEA's format, or for a copy of any or all of the files with the Kentucky estimates (with or without the U.S. estimates), there will be no additional charge. However, additional charges will be billed for all other selective subsets of data or for preparation of the data in specialized data formats.

Potential users of the data on diskette should be aware that the data have been distributed by BEA in compressed form, which needs to be uncompressed by BEA region before the data are in usable form. A program to do this is included on each disk. Further, a BASIC program (also on the disk) will need to be run to extract the data for a specific state. Documentation, available on each disk, is sufficient to allow anyone with some familiarity with microcomputers to perform the above tasks and obtain selected data suitable for importing into, for example, LOTUS or dBASE. Kentucky and U.S. data have already been extracted by CBER and are available in standard ASCII format if a complete set of the data is not needed.

For further information, or to request a copy of these data, please contact Roy Sigafus, (606) 257-7677.

* * *

The Center for Business and Economics Research is responsible for the *Working Paper Series* of the College of Business and Economics. A number have been released since January 1986 and are available, upon request, from the Center; they include papers authored by faculty from the Departments of Economics, Finance and Management. By author and title, they are:

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Paul M. Anglin, "Multi-Market Search II: Equilibrium Price Dispersion with Costly Search."

John M. Barron, Dan A. Black, and Mark A. Loewenstein, "Job Matching and On-the-Job Training."

Michael R. Baye and Dan A. Black, "A Systematic Exposition of the True Cost of Living Index Under Taxation: Part II."

Glenn C. Blomquist and Mark C. Berger, "New Estimates of Quality of Life in Urban Areas."

Glenn Blomquist, Mark Berger, and Werner Waldner, "A Quality of Life Ranking for Metropolitan Areas."

Philip Bobko, Ronald Karren, and Shanta P. Kerkar, "Systematic Research Needs for Understanding Supervisory-Based Estimates of SDy in Utility Analysis."

Jeffrey R. Cornwall and Andrew J. Grimes, "Cosmopolitan-Local: A Cross-Lagged Correlation Analysis of the Relationship between Professional Role Orientations and Behaviors in an Academic Organization."

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Richard E. Gift, "How International Economic Policy May Alter Legal Foundations."

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J. Ronald Hoffmeister, Dennis T. Officer, and A. James Ifflander, "An Empirical Analysis of Public Utility Rate Requests and Authorizations in an Efficient Capital Market."

A. Steven Holland, "The Changing Responsiveness of Wages to Price Level Shocks: Explicit and Implicit Indexation."

A. Steven Holland, "Estimates of the Long-Term Real Effects of Inflation Uncertainty."

A. Steven Holland, "The Long-Term Effect of Inflation Uncertainty on Real GNP."

Keith H. Johnson and Michael D. Carpenter, "Dividend Capture, the Clientele Effect, and the Tax Reform Act of 1984."

James R. Lang, and Daniel E. Lockhart, "Increased Environmental Uncertainty and Changes in Board of Director Linkage Patterns: The U.S. Trunk Airlines during Deregulation."

Rakesh Sambharya, "Computer Information Flows and Organizational Characteristics of U.S. Multinational Organizations."

Mark J. Wallace, Jr., "The Strategic Uses of Compensation Practice."

* * *

Since this is the last issue of *Review & Perspective* that I will edit, I wish to use this space to say farewell, but not goodbye, to the many friends whom we reach through this publication, especially that special breed, the KEIS users. I leave with fond memories of the many at the University of Kentucky and in state government who have supported our efforts; I have learned a great deal from them. My thanks to all.

—moa—

Changes in Kentucky County-Level Economic Indicators, 1983-84

Per Capita Personal Income

Table 1 gives the current dollar values for Kentucky county-level per capita personal income in 1983 and 1984, and shows the percentage change over these two years. The source for the county-level per capita personal income estimates is the Bureau of Economic Analysis (BEA), U.S. Department of Commerce. Revisions were made last winter in the National Income and Product Accounts (NIPA) data which resulted in a major revision, issued earlier this fall, of state-level personal income data; comparable revisions for county-level estimates will not be issued until Spring 1988. Therefore the data reported here, released by BEA in Spring 1986, will be substantially revised, but not until 1988; until then, these data are the "official" county estimates.

According to these estimates, current dollar (i.e., nominal) per capita personal income increased in all but one Kentucky county, Trimble, in 1984. However, at a constant dollar level (i.e., real), income growth in 76 counties exceeded 6.8 percent, the rate of national inflation as measured by the 1972$ implicit price deflator for personal consumption expenditures.[1] Overall, Kentucky's per capita personal income in real terms (1972$) grew by 7.0 percent. Only one of the counties that did not grow in pace with national inflation, Hart County, had population growth (9.2 percent) significant enough to have contributed to its slow growth on a per capita basis. In no other area was population growth large enough to influence significantly changes in per capita personal income.

Table 1
Kentucky County-Level Per Capita Personal Income, 1983-84

	1983	1984	PERCENT CHANGE 1983-84
ADAIR	6409 00	7347 00	14 64
ALLEN	7590 00	8915 00	17 46
ANDERSON	9832 00	10756 00	9 40
BALLARD	8761 00	10566 00	20 60
BARREN	8025 00	9313 00	16 05
BATH	6477 00	7557 00	16 67
BELL	7440 00	8115 00	9 07
BOONE	10660 00	11568 00	8 52
BOURBON	13638 00	14560 00	6 76
BOYD	10502 00	11335 00	7 93
BOYLE	9148 00	10428 00	13 99
BRACKEN	8242 00	9489 00	15 13
BREATHITT	6740 00	7371 00	9 36
BRECKENRIDGE	6286 00	7799 00	24 07
BULLITT	8592 00	9215 00	7 25
BUTLER	5837 00	6652 00	13 96
CALDWELL	8245 00	9514 00	15 39
CALLOWAY	8070 00	8984 00	11 33
CAMPBELL	10336 00	11270 00	9 04
CARLISLE	7340 00	9716 00	32 37
CARROLL	8853 00	9723 00	9 83
CARTER	6353 00	6886 00	8 39
CASEY	5284 00	5871 00	11 11
CHRISTIAN	7997 00	9198 00	15 02
CLARK	9874 00	10945 00	10 85
CLAY	6590 00	7233 00	9 76
CLINTON	4973 00	5489 00	10 38
CRITTENDEN	8115 00	9464 00	16 62
CUMBERLAND	6802 00	7550 00	14 36
DAVIESS	10569 00	11791 00	11 56
EDMONSON	5271 00	5801 00	11 95
ELLIOT	4800 00	5395 00	12 40
ESTILL	6817 00	7479 00	9 71
FAYETTE	13332 00	14421 00	8 17
FLEMING	6175 00	7065 00	14 41
FLOYD	6760 00	7068 00	4 57
FRANKLIN	11721 00	12810 00	9 29
FULTON	8678 00	10471 00	20 66
GALLATIN	7528 00	8446 00	12 22
GARRARD	7507 00	9079 00	18 35
GRANT	8141 00	8978 00	10 28
GRAVES	8915 00	10533 00	18 15
GRAYSON	6820 00	7589 00	11 28
GREEN	7104 00	8600 00	21 06
GREENUP	8775 00	9410 00	7 24
HANCOCK	9045 00	10211 00	12 89
HARDIN	8146 00	8874 00	8 94
HARLAN	7167 00	7848 00	9 50
HARRISON	8972 00	9936 00	10 74
HART	6759 00	7238 00	7 09
HENDERSON	10251 00	11774 00	14 86
HENRY	8619 00	9312 00	8 04
HICKMAN	6752 00	8945 00	32 48
HOPKINS	10804 00	12066 00	11 68
JACKSON	4936 00	5548 00	12 40
JEFFERSON	11888 00	12901 00	8 52
JESSAMINE	9026 00	9954 00	10 28
JOHNSON	7381 00	7903 00	7 07
KENTON	10849 00	11778 00	8 56
KNOTT	6332 00	6851 00	8 20
KNOX	6007 00	6638 00	10 50
LARUE	7765 00	8804 00	13 38
LAUREL	7225 00	7817 00	8 19
LAWRENCE	6784 00	7249 00	6 85
LEE	5653 00	6206 00	9 78
LESLIE	5506 00	6119 00	11 13
LETCHER	6660 00	7359 00	10 50
LEWIS	5518 00	6308 00	14 32
LINCOLN	6093 00	7129 00	17 00
LIVINGSTON	8083 00	9226 00	14 14
LOGAN	7562 00	9082 00	20 13
LYON	7363 00	8482 00	15 20
MCCRACKEN	11107 00	12053 00	8 52
MCCREARY	4714 00	4852 00	2 93
MCLEAN	8202 00	10357 00	26 27
MADISON	7831 00	8782 00	12 14
MAGOFFIN	5806 00	6446 00	11 02
MARION	8188 00	7146 00	15 48
MARSHALL	8718 00	9609 00	10 22
MARTIN	7611 00	8172 00	7 37
MASON	8920 00	10015 00	12 28
MEADE	7045 00	7792 00	10 60
MENIFEE	4603 00	5255 00	11 98
MERCER	8648 00	9572 00	10 68
METCALFE	5591 00	6664 00	19 19
MONROE	6219 00	7140 00	14 81
MONTGOMERY	7859 00	8837 00	12 44
MORGAN	5502 00	6172 00	12 18
MUHLENBERG	9768 00	10417 00	6 64
NELSON	8480 00	9263 00	9 23
NICHOLAS	7492 00	8080 00	7 85
OHIO	7916 00	8958 00	13 16
OLDHAM	11626 00	12314 00	5 92
OWEN	6685 00	7926 00	18 56
OWSLEY	4453 00	5093 00	14 37
PENDLETON	7836 00	8664 00	10 57
PERRY	7108 00	7668 00	7 88
PIKE	7811 00	8291 00	6 15
POWELL	6277 00	6857 00	9 24
PULASKI	7409 00	8180 00	10 41
ROBERTSON	6925 00	7597 00	9 70
ROCKCASTLE	5433 00	5924 00	9 04
ROWAN	6709 00	7333 00	9 30
RUSSELL	6060 00	6941 00	14 54
SCOTT	9953 00	10990 00	10 42
SHELBY	9522 00	10616 00	10 33
SIMPSON	8741 00	10381 00	18 76
SPENCER	7953 00	8683 00	9 04
TAYLOR	7699 00	8735 00	13 46
TODD	6293 00	8419 00	33 78
TRIGG	8465 00	10141 00	19 80
TRIMBLE	8542 00	8283 00	-3 03
UNION	8744 00	11157 00	27 60
WARREN	8316 00	9413 00	13 19
WASHINGTON	6755 00	7859 00	16 34
WAYNE	5348 00	5911 00	10 53
WEBSTER	9385 00	11093 00	18 20
WHITLEY	7696 00	8246 00	7 15
WOLFE	5173 00	5855 00	13 18
WOODFORD	14173 00	15361 00	8 38
PURCHASE ADD NO 1	9370 98	10577 49	12 87
PENNYRILE ADD NO 2	8854 01	10061 28	13 64
GREEN RIVER ADD NO 3	9796 07	11235 71	14 70
BARREN RIVER ADD NO 4	7577 94	8677 91	14 52
LINCOLN TRAIL ADD NO 5	7557 18	8413 80	11 34
KIPDA(KY COUNTIES) ADD NO 6	11523 10	12478 61	8 29
NORTHERN KENTUCKY ADD NO 7	10232 71	11161 27	9 07
BUFFALO TRACE ADD NO 8	7205 61	8157 2-	13 21
GATEWAY ADD NO 9	6631 91	7465 37	12 57
FIVCO ADD NO 10	8600 38	9276 86	7 87
BIG SANDY ADD NO 11	7303 73	7764 94	6 31
KENTUCKY RIVER ADD NO 12	6385 98	6990 95	9 47
CUMBERLAND VALLY ADD NO 13	6860 99	7480 73	9 03
LAKE CUMBERLAND ADD NO 14	6422 29	7194 79	12 03
BLUEGRASS ADD NO 15	10885 40	11918 02	9 49
KENTUCKY STATE TOTALS	9294 00	10232 00	10 09

SOURCE BUREAU OF ECON ANALYSIS

Table 2
Kentucky County-Level Average Earnings, 1983-84

	1983	1984	PERCENT CHANGE 1983-84
ADAIR	7780 25	9416 73	21 03
ALLEN	9207 73	11327 82	23 03
ANDERSON	11764 54	12491 45	6 18
BALLARD	11770 47	15758 51	33 88
BARREN	11705 56	13164 66	12 46
BATH	7125 96	9846 20	38 17
BELL	16400 56	17316 55	5 59
BOONE	15324 31	16203 56	5 74
BOURBON	21472 13	21879 98	1 90
BOYD	19835 29	20779 46	4 76
BOYLE	13192 75	14676 09	11 24
BRACKEN	8684 94	10677 61	22 94
BREATHITT	17834 25	19157 45	7 42
BRECKENRIDGE	5010 24	7943 75	58 55
BULLITT	12303 34	13280 56	7 94
BUTLER	6758 58	9047 96	33 87
CALDWELL	9327 39	11162 68	19 68
CALLOWAY	9801 48	11641 46	18 77
CAMPBELL	14128 95	14783 42	4 63
CARLISLE	3375 13	8320 73	146 53
CARROLL	15400 70	16817 73	9 20
CARTER	9564 96	10489 22	9 66
CASEY	6970 16	8554 95	22 74
CHRISTIAN	13573 86	14694 38	8 25
CLARK	15050 27	16680 18	10 83
CLAY	15772 36	17801 47	12 86
CLINTON	7053 98	7668 46	8 71
CRITTENDEN	8398 34	10374 93	23 54
CUMBERLAND	7817 24	8940 02	14 36
DAVIESS	14604 63	15923 43	9 03
EDMONSON	6997 66	8560 51	22 33
ELLIOTT	7361 57	9027 23	22 63
ESTILL	11026 59	12575 68	14 05
FAYETTE	19600 58	20078 65	2 44
FLEMING	7052 09	8546 04	21 18
FLOYD	16825 71	17451 97	3 72
FRANKLIN	15823 20	16730 55	5 73
FULTON	8175 79	10485 04	28 24
GALLATIN	9252 50	9445 33	2 08
GARRARD	7180 93	8657 67	20 56
GRANT	8674 30	10157 48	17 10
GRAVES	11233 56	14319 28	27 47
GRAYSON	8404 89	9817 90	16 81
GREEN	6821 88	9090 11	33 25
GREENUP	21962 80	22985 67	4 66
HANCOCK	24647 36	26261 93	6 55
HARDIN	13769 30	14885 06	8 10
HARLAN	17856 56	19291 18	8 03
HARRISON	11563 02	12597 46	8 95
HART	7606 78	9476 88	24 58
HENDERSON	14422 91	16757 40	16 19
HENRY	8895 63	9869 69	10 95
HICKMAN	6667 37	10440 30	56 59
HOPKINS	15860 26	17209 83	8 51
JACKSON	7781 67	9086 93	16 77
JEFFERSON	18705 32	19610 76	4 84
JESSAMINE	11638 29	12858 95	10 49
JOHNSON	14393 02	14984 24	4 11
KENTON	14806 66	15533 98	4 91
KNOTT	16555 43	17837 06	7 74
KNOX	12753 23	13810 77	8 29
LARUE	6420 38	8333 17	29 79
LAUREL	12746 30	13671 40	7 26
LAWRENCE	11918 78	13145 37	10 29
LEE	11432 14	12258 21	7 23
LESLIE	11673 68	12162 85	4 19
LETCHER	14949 73	16917 89	13 17
LEWIS	7456 25	8981 45	20 46
LINCOLN	6013 38	7474 45	24 30
LIVINGSTON	8726 93	11581 67	32 71
LOGAN	10677 31	13669 45	28 02
LYON	9803 83	11694 89	19 29
MCCRACKEN	15468 52	16163 81	4 49
MCCREARY	9605 03	9862 35	2 68
MCLEAN	7254 75	12172 13	67 78
MADISON	12440 06	13744 72	10 49
MAGOFFIN	14527 18	15995 97	10 11
MARION	7402 11	9188 03	24 13
MARSHALL	16307 28	17360 83	6 46
MARTIN	32402 07	34408 27	6 19
MASON	13835 90	14486 96	4 71
MEADE	10556 39	12498 60	18 40
MENIFEE	6708 22	8249 18	22 97
MERCER	10162 33	11414 12	12 32
METCALFE	4961 82	7285 79	46 84
MONROE	6958 04	8553 35	22 93
MONTGOMERY	11023 08	12281 30	11 41
MORGAN	9940 69	11667 75	17 37
MUHLENBERG	18460 79	19094 29	3 43
NELSON	11208 75	12381 95	10 47
NICHOLAS	8477 48	9127 27	7 66
OHIO	12338 09	14448 44	17 10
OLDHAM	14450 86	14699 77	1 72
OWEN	7860 60	10113 56	28 66
OWSLEY	7256 50	8982 63	23 79
PENDLETON	9095 17	10232 08	12 50
PERRY	19369 01	20469 47	5 68
PIKE	18500 21	19347 09	4 58
POWELL	10870 15	11782 88	8 40
PULASKI	11313 77	12366 70	9 31
ROBERTSON	6408 41	7532 80	17 55
ROCKCASTLE	7434 29	8265 00	11 17
ROWAN	12485 18	13207 37	5 78
RUSSELL	8257 66	9672 01	17 13
SCOTT	13272 39	15248 55	14 89
SHELBY	10448 25	11598 81	11 01
SIMPSON	12029 02	14123 61	17 41
SPENCER	5877 46	6492 99	10 47
TAYLOR	10653 17	12287 46	15 34
TODD	4504 12	8638 88	91 80
TRIGG	8733 23	10898 41	24 79
TRIMBLE	11325 43	13430 82	18 59
UNION	17014 85	21420 50	25 89
WARREN	13672 82	14752 57	7 90
WASHINGTON	7758 40	9399 61	21 15
WAYNE	8134 46	9190 16	12 98
WEBSTER	11528 82	14113 69	22 42
WHITLEY	12927 03	13781 80	6 61
WOLFE	9344 04	10932 44	17 00
WOODFORD	19980 34	21115 73	5 68
PURCHASE ADD NO 1	12900 49	14636 32	13 46
PENNYRILE ADD NO 2	13428 64	14816 11	10 33
GREEN RIVER ADD NO 3	14730 83	16841 97	14 33
BARREN RIVER ADD NO 4	11204 70	12890 36	15 04
LINCOLN TRAIL ADD NO 5	11311 25	12698 64	12 27
KIPDA(KY COUNTIES) ADD NO 6	18094 23	18997 89	4 99
NORTHERN KENTUCKY ADD NO 7	14090 86	14970 63	6 24
BUFFALO TRACE ADD NO 8	10234 70	11404 80	11 43
GATEWAY ADD NO 9	10584 71	11960 31	13 00
FIVCO ADD NO 10	18057 17	19042 71	5 46
BIG SANDY ADD NO 11	18394 47	19264 94	4 73
KENTUCKY RIVER ADD NO 12	15936 55	17213 22	8 01
CUMBERLAND VALLY ADD NO 13	13949 20	15089 21	8 17
LAKE CUMBERLAND ADD NO 14	9297 78	10617 50	14 19
BLUEGRASS ADD NO 15	16425 57	17322 87	5 46
KENTUCKY STATE TOTALS	15078 63	16271 45	7 91

SOURCE BUREAU OF ECONOMIC ANALYSIS

Using data consistent with the county estimates, per capita personal income in the U.S. in current dollars grew at a rate of 9.3 percent, 1983-84. Per capita personal income grew at a comparable or faster rate in 85 Kentucky counties but only one of them, Franklin County, had a per capita personal income level greater than the national average ($12,772). However, 5 counties that did not grow as fast (Bourbon, Fayette, Franklin, Jefferson and Woodford) had a per capita personal income level in 1984 above the national average. Despite the faster rate of growth in Kentucky's per capita personal income in 1984 (10.1 percent compared to the national increase of 9.3 percent), the difference between the average per capita personal income in the U.S. and in Kentucky was greater in 1984 than in 1983.[2]

Other Indicators

In 51 counties, there were increases in earnings across all industrial sectors, accounting for overall growth in the state's economy 1983-84. Of the remaining 69 counties, 48 had one or two sectors with a decline in earnings; there were no counties with more than four declining sectors. The industries that declined in many counties were wholesale trade, construction, and manufacturing. Of these, earnings in wholesale trade declined in 19 counties; making this the industry with the largest number of counties in decline.

As shown in Table 2, average earnings per job grew from 1983 to 1984 in all counties. In 86 counties, the percent change 1983-84 was greater than the state average of 7.9 percent. However, of these counties, only eight

(Carroll, Clark, Clay, Harlan, Henderson, Hickman, Letcher and Union counties) had an average earnings level in 1984 greater than the state average of $16,271.

A comparison of the distribution of average earnings per job and per capita personal income in Kentucky for 1984 indicates[1] that although approximately the same number of counties fell above the state average for both measures, these counties were not necessarily the same.[3] Specifically, only 12 counties, primarily in central and western Kentucky, had levels of per capita personal income *and* average earnings per job which were above the respective state averages. Of the remaining counties falling above the state average for one of these measures, those with higher per capita income were predominantly in northern, central or western Kentucky. Conversely, the remaining counties with average earnings per job higher than the state average were predominantly in the eastern portion of Kentucky. In addition, the unemployment rate in these eastern Kentucky counties was relatively higher than those counties with higher per capita personal income levels. This suggests that although average earnings per job may have been high in some eastern Kentucky counties, a smaller portion of the resident labor force in these areas was actually employed.

Notes

[1]The 1972$ implicit price deflator for personal consumption expenditures is used here to make consistent comparisons with the county-level personal income data presented. The 1982$ implicit price deflator for personal consumption expenditures indicates the rate of national inflation for 1984 was 4.0 percent.

[2]Revisions in national and state-level data subsequent to the national and state-level estimates upon which the county-level estimates were made put national per capita personal income at $12,093 in 1983 and $13,114 in 1984, for a revised growth rate of 8.4 percent; the comparable revised estimate for Kentucky's per capita income is $9,475 in 1983 and $10,377, a growth rate of 9.5 percent. The difference between U.S. per capita personal income and Kentucky per capita personal income was $2,618 in 1983 and $2,737 in 1984, suggesting a widening of the gap between the Kentucky and national economies.

[3]See "Geographic Distribution of Counties on Per Capita Personal Income Relative to the State Average ($10,200), 1984" in Summer 1986 (Vol. 10, No.2) of this publication, p. 16, and also, "Geographic Distribution of Counties on Average Earnings Per Job Relative to the State Average ($16,271), 1984" on p. 16 of this issue. There were 28 counties with a per capita personal income level higher than the state average and 25 counties with an average earnings per job level higher than the state average.

(Continued from page 1)

by "current dollar" data. If one were to adjust the merchandise import data noted above to take account of price changes, the 1981 import figure would be approximately $267 billion and the third-quarter 1986 annual rate would be about $430 billion, a gain of 61 percent since 1981. When adjusted in a comparable way for price changes, U.S. exports declined by 12.4 percent over the same period.

U.S. producers face formidable competition in trying to regain markets, both at home and abroad. It is to be hoped that they will begin to enjoy some significant success in 1987. If they do not, the likelihood will be great that the U.S. economy will slip into recession sometime during the year.

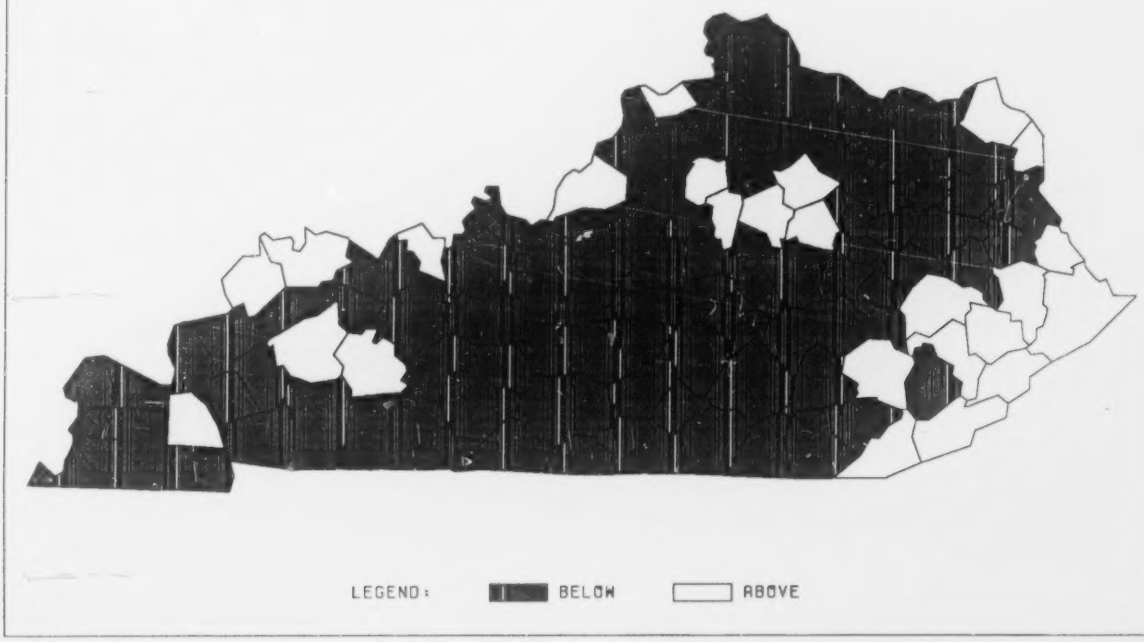
The dollar's decline in 1985-1986 should be favorable to expansion of Kentucky's agricultural exports. Even in the face of increases in the international value of the dollar, exports of agricultural commodities from Kentucky rose from $629 million in 1981 to $771 million in 1983. However, such exports fell to $648 million in 1984 as the dollar reached new highs. With the dollar falling in 1985, Kentucky's agricultural exports rose to $708 million, thus recovering some of the loss suffered in 1984. Exports of Kentucky tobacco (unmanufactured) increased from $195 million in 1984 to $270 million in 1985, and Kentucky soybeans and soybean products increased from $113 million in 1984 to $120 million in 1985. Kentucky's two major agricultural exports thus showed gains totaling $82 million compared to the net increase of $60 million for all agricultural exports from Kentucky. The further decline in the dollar in 1986 should help strengthen foreign demand for Kentucky agricultural exports in general as well as contribute to further increases in the especially price-sensitive markets for tobacco and soybeans.

Prospects appear less favorable for another of Kentucky's important exports—coal. While the dollar's decline has brought back some foreign demand for U.S. coal, world coal prices have been under strong downward pressure from excess capacity in coal production, both in the U.S. and abroad, and from declines in the price of oil. Another factor which continues to be adverse to expansion of coal exports from Kentucky is the deregulated status of railroad freight rates on coal destined for export. This factor has been cited by coal producers in general as placing U.S. coal at a competitive disadvantage in world markets. The effect on Kentucky coal is further aggravated by the longer hauls to coal-export ports as compared to production areas in Virginia and West Virginia.

Unhappily, data on exports of goods manufactured in Kentucky are too limited to provide any basis for projecting the effects of the dollar's decline. It would not be unreasonable to presume that the effects in Kentucky will be similar to effects projected for manufacturing in the U.S. in general. As suggested above, there appears to be little basis for projecting significant increases in U.S. exports. Rather, the more likely prospect is that the dollar's decline, by increasing the dollar prices of foreign goods, will cause U.S. consumers to shift from imports towards domestically produced goods. The distribution of such shifts is, of course, very hard to predict. Kentucky will share some in any improvement but will also share in the recession that can be expected if significant improvement in the trade balance does not come in 1987.

Geographic Distribution of Counties

on Average Earnings Per Job Relative to the State Average ($16,271), 1984



Source: Bureau of Economic Analysis, U.S. Department of Commerce through Kentucky Economic Information System.

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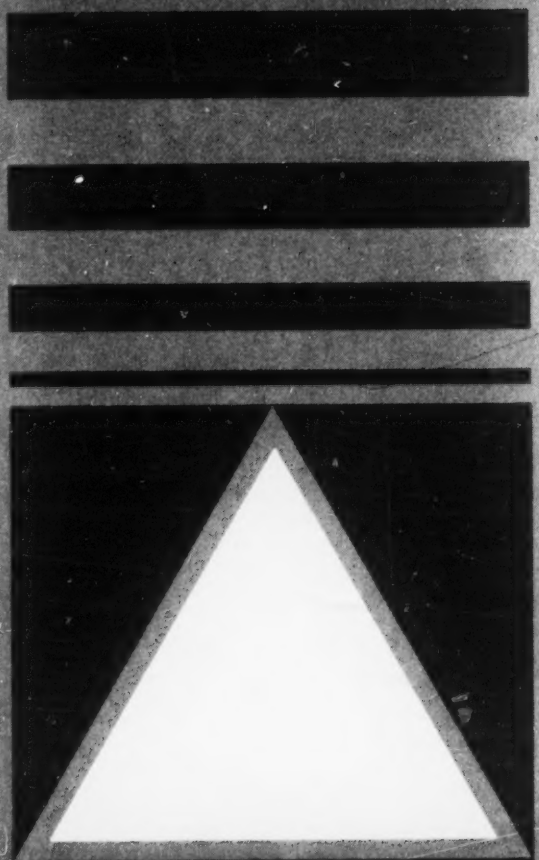

REVIEW & PERSPECTIVE

A publication addressing business, economic and public policy issues related to Kentucky.

NOTE FROM THE EDITOR

Review & Perspective has a new look! Some format and design changes have resulted in a new cover being added; more color throughout the publication; and a new "column" called Inforum. *Inforum will be written by Lucinda R. Zoe, Information Specialist with the Center for Business and Economic Research, and will keep you updated on new sources of information and data relating to issues addressed in this publication. I am excited about these changes and hope you will find them to be attractive and an enhancement to the publication.*

This issue of Review & Perspective *includes summary articles from the Toyota impact studies done at the University of Kentucky's Center for Business and Economic Research (CBER) and the University of Louisville's Urban Studies Center (USC) and Bureau of Economic Research (BER). These two studies provide different analyses regarding Toyota's location in Kentucky. The CBER study focuses on the economic impacts of Toyota's location in terms of output, earnings and employment for the state. It also provides a long-run analysis of the eventual return to the state's investment in Toyota.*

The USC/BER study addresses a wider range of potentially impacted socioeconomic variables including population, new business locations, land use, and local government costs and revenue. Although a wider set of variables is analyzed, the focus is primarily on the impact to Scott County rather than the entire state.

The Inforum *section and the discussion on p. 14 on "Japanese Direct Industrial Investment in Kentucky, by County," supplement these two articles well. I hope you enjoy the issue. Please feel free to share your comments and suggestions with me either by phone or mail.*

Beth Smith

Editor

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Information Services Center
Director: Janet S. Cabaniss
Typesetting: James C. Wright
Graphic Artists: Betty Milburn and Bruce Jones

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This publication provides current information concerning Kentucky's economy, its business activities, and related public policy issues. It is a forum for the publication of short expository articles as well as analytical articles addressing any of these areas. The publication also includes tables of selected data chosen as indicators of developments in the Kentucky and national economies. Sometimes information about enhancements to the Kentucky Economic Information System (KEIS) also appears in this publication.

Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Transitions in Banking: A Kentucky Perspective

by Charles F. Haywood*

In the 1984 session of the General Assembly, Kentucky joined a small vanguard of states adopting affirmative legislation to permit interstate banking. Prior to 1984, only six states had made a similar move. Alaska and Maine had opened their borders to acquisitions of banks by bank holding companies from any state —"open nationwide." New York's law allowed acquisitions by bank holding companies from any state open on a reciprocal basis to acquisitions by New York banking organizations —"national reciprocity." Connecticut, Massachusetts, and Rhode Island had adopted statutes permitting acquisitions by bank holding companies from any New England state on a reciprocal basis —"regional reciprocity."

Kentucky adopted a double-barreled approach. The 1984 act provided that for two years interstate acquisitions would be limited to continguous states with reciprocal laws, and the regional restriction would be dropped in July 1986. Kentucky thus adopted what has come to be called "regional reciprocity with a national trigger."

The small vanguard which Kentucky joined in 1984 quickly grew into a majority of the states. At the end of 1986, 36 states and the District of Columbia had adopted some form of interstate banking.

In addition to the District of Columbia, 18 states have opted for regional reciprocity *without* a national trigger: Alabama (effective 7/87), Connecticut, Florida, Georgia, Idaho, Illinois, Indiana, Louisiana (effective 7/87), Massachusetts, Minnesota, Mississippi (effective 7/88), Missouri, North Carolina, South Carolina, Tennessee, Virginia, and Wisconsin. All of these laws were in effect at the beginning of 1987 with the exception of those noting effective dates in parentheses. One state, Oregon, has adopted regional interstate but does not require reciprocity.

Eight states have joined Kentucky and New York in the "national reciprocity" column. Washington will move directly to national reciprocity in July 1987 as will West Virginia in January 1988. The other six states now have "regional reciprocity with a national trigger." Five of these states with their trigger dates are California (1/91), Michigan (10/88), Ohio (1/88), Pennsylvania (3/90), and Rhode Island (7/87). The sixth state, New Jersey, does not have a time-dated trigger but will move to national reciprocity when a certain number of other states have adopted laws permitting acquisitions by New Jersey banking organizations.

Seven states have adopted "open nationwide" interstate banking. Alaska and Maine have now been joined by Arizona and Texas. Oklahoma's law becomes effective in November 1987, Utah's law in January 1988, and Nevada's law in January 1989.

The actions of the states in adopting interstate banking laws reflect the fact that Federal law bars interstate acquisitions of banks by bank holding companies in the absence of affirmative legislation at the state level. That restriction, often called the "Douglas amendment" (after the late Senator Paul Douglas of Illinois), dates from 1956 when it was enacted as part of the Bank Holding Company Act.

There are now 17 states in which Kentucky banking organizations may acquire banks and from which bank holding companies may acquire Kentucky banks. Included are Alaska, Arizona, Georgia, Illinois, Indiana, Maine, Missouri, New York, New Jersey, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Wisconsin. On the basis of laws now on the books, the list will expand to 29 states by 1991 and include the following additional states: Alabama, Louisiana, Maryland, Rhode Island, and Washington (7/87); Oklahoma (11/87); Utah; and West Virginia (1/88); Michigan (10/88); Nevada (1/89); Mississippi (7/90); and California (1/91). In some instances, however, regional restrictions would prevent a bank holding company from being represented in all 29 states and Kentucky. For example, a New York organization could not buy a bank in Kentucky and then "leap frog" into reciprocity, for example, with Indiana. The "anti-leap frogging" restrictions in various state laws are one of the more complex aspects of the current interstate banking situation. There is some likelihood that the restrictions will be modified and eliminated over the next five to ten years.

*Charles F. Haywood is Chief Economist, Center for Business and Economic Research, University of Kentucky. He directs the Center's Economic Analysis and Financial Policy Studies Program. Dr Haywood is also Professor of Finance, College of Business and Economics, University of Kentucky.

By the end of 1986, there had been thirteen instances in which out-of-state banking organizations had effected entry or had announced their intention to effect entry into Kentucky through acquisitions of Kentucky banks or mergers with Kentucky bank holding companies. There have also been several acquisitions of out-of-state banks by Kentucky organizations. The largest transaction announced to date is the merger of Citizens Fidelity Corporation of Louisville into PNC Financial Corporation of Pittsburgh. The resulting banking organization has assets in excess of $25 billion. Also of relatively significant size was the acquisition of Citizens Union National Bank of Lexington by Banc One Corporation of Columbus, Ohio. Additional interstate acquisitions and mergers can certainly be expected to take place over the next few years, but a large number of banks in Kentucky, especially in the smaller communities throughout the state, will continue as independent entities.

Thus far, the General Assembly's 1984 action opening the state to interstate banking appears to be moving along a sound and beneficial course of development. The prospects are that the banking system of the state will be strengthened and that financial resources needed for the state's future economic growth will be augmented.

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Estimated Economic Impact of Toyota on Kentucky

by Roger J. Calantone and Carolyn S. Looff*

Researchers at the Center for Business and Economic Research at the University of Kentucky recently completed an analysis of the economic impact of the new Toyota plant on the state's economy. The study analyzes the potential for increased employment, output and earnings in the state as a result of Toyota locating in Scott County. Using a very conservative set of assumptions, our results indicate the economic impact of Toyota locating in Kentucky is generally positive.

Table 1
Toyota Plant Location Investments

	Made by the State	Made by Toyota	Made by the Supplier Plants
		(millions)	
Land Purchase	$ 12.5		
Site Preparation	20.0	$ 23.9	
Highway Improvements	47.0		
Toyota Employee Training	65.0		
Toyota Families' Education	3.2		
Miscellaneous	9.0		
Plant Construction		340.0	$250.0
Machinery		460.0	450.0
Total Investment	$156.7	$823.9	$700.0

Source: Estimates were made based on interviews with state officials, industry analysts, and company officials from Toyota and supplier plants.

*Roger J. Calantone is Director of Research, Center for Business and Economics Research, and Associate Professor of Marketing, College of Business and Economics, University of Kentucky. Carolyn S. Looff is Research Associate, Center for Business and Economic Research, University of Kentucky.

The Investment in Toyota

The total impact of Toyota on the state's economy results from investments by Toyota, its supplier plants, and the state. These investments are summarized in Table 1. Toyota will invest a total of $823.9 million in plant, equipment and site preparation providing a considerable impact on the state's economy independent of the other related investments. However, the total impact of Toyota results not only from the construction and operation of the Toyota plant itself, but also from investments made by plants locating in the region to supply Toyota. Industry analysts believe that Toyota's use of the "just-in-time" inventory strategy coupled with the fact that Toyota will probably rely on Japanese-parts suppliers to maintain the high quality product for which they are known, means that there will be a significant number of suppliers moving into the state as a direct result of Toyota.[1] "Satellite" businesses are estimated to invest $700 million in plant and machinery by 1989 resulting in the employment of 1,500 persons.[2]

The state's investment in Toyota is the incentive package offered to the automotive manufacturer by state officials. The total amount committed to bring Toyota to the state is still an estimate since much of the expense is yet to be incurred. However, based on information currently available (through state and local government officials), the total investment will probably approach $156.7 million. This includes the cost of land purchase, site preparation, highway improvements, Toyota employee training, Toyota families' education, bond interest and other miscellaneous items.

The majority, if not all, of the land necessary for Toyota has already been purchased for approximately $12.5 million. Although the General Assembly originally approved $20 million for site preparation including grading, easements, utilities and sewers, recent estimates of the actual cost approach $43.9 million. However, Toyota officials have indicated that the company will cover any expenses in excess of the originally budgeted $20 million. Therefore, in our analysis, Toyota is assessed with an anticipated expenditure of $23.9 million for site preparation to cover this difference.

Although federal funds will cover $22 million in highway improvements, Kentucky receives only limited federal monies for highways. Funds spent in relation to Toycta have an associated opportunity cost, i.e., they cannot be spent on other needed highway projects. Therefore, the total anticipated expenditure on highway improvement, $47 million, is considered a cost to the state.

Additional costs to the state include the construction of a $10 million training facility and the initial costs of training Toyota employees, for which estimates vary between $20.4 million and $55 million. A portion of the training costs could possibly be covered

[1]See map, "Japanese Direct Industrial Development in Kentucky," on p. 14 of this publication.

[2]Output, earnings and jobs estimates used as input data in the RIMS II model were generated from telephone and direct interviews with state officials, industry analysts, and company officials from Toyota, Honda, Nissan, General Motors and their supplier plants. Based on these interviews and additional research, the following very conservative assumptions were made: the average manufactured value of a Toyota automobile was $8,000 in 1986; 1,800 Toyota employees will produce 25,000 automobiles by mid-1988; and, 3,000 employees will produce 200,000 cars by 1990 at full production levels.

by federal funds through the Job Training Partnership Act (JTPA); however, the Act applies only if the workers to be hired and trained are currently unemployed. The training of workers who transfer from other jobs must be covered by state funds. Because of the relatively low unemployment rate in the Scott County area, the state is unlikely to benefit substantially from JTPA funds. Therefore, the highest estimate, $55 million, for the cost of training is used in this analysis. Adding the training cost to the $10 million for a training facility equals the total employee training cost of $65 million.

The state has made a 20-year commitment to provide a Saturday school for the children of Japanese Toyota employees, and a 10-year commitment to operate an English Language Class for Toyota employees and their families. Although uncertainty still exists regarding the source of funds to cover these classes, the assumption is made in this study that the state will eventually pay the estimated cost of $3.2 million.

The miscellaneous costs of $9.0 million include, for example, surveys, legal fees, a Toyota Impact Study, and other unforeseen expenses. Not included in these costs is a $10 million robotics center to be developed at the University of Kentucky since this center had been planned before Toyota announced construction of its plant.

According to state officials, approximately $90 million of the above costs will be financed through federal and state tax-exempt Economic Development Bonds (EDBs) on which interest will be paid at 9.5 percent. This will result in total bond interest payments of $166.7 million. However, since additional output, employment and earnings are not generated through interest payments, this cost is not included in our analysis as part of the state's investment.

The Economic Impact

The total economic impact of the Toyota plant in the state is the culmination of a chain of numerous individual effects that ripple throughout the economy. *Direct effects* include direct spending and employment associated with the construction and operation of the Toyota plant and its suppliers' plants. To compute the direct effects, it is assumed that approximately 1,800 Toyota

The State's Investment in Toyota: Costs versus Revenues

Kentucky made an investment in Toyota when it offered the corporation an incentive package worth approximately $323 million over a period of 20 years (1986-2006). To analyze the relative benefits of this investment, the Center for Business and Economic Research at the University of Kentucky conducted an Internal Rate of Return (IRR) analysis, comparing the costs of the incentive package with the state's expected revenues during the 20-year period. The results of this analysis indicate that the state's investment was probably worthwhile.

Information available through state and local government officials indicates that the total cost to taxpayers of the incentive package will probably approach $323.4 million over the next 20 years. Included in this total cost is $12.6 million for the purchase of land, $20 million for site preparation, $47 million for highway improvements, $65 million for Toyota employee training, $3.2 million for Toyota families' education, and $9 million for miscellaneous costs. In addition, approximately $90 million of these costs will be financed through federal and state tax-exempt Economic Development Bonds (EDBs) on which interest will be paid at 9.5 percent. Therefore, an additional cost to taxpayers will be $166.7 million in interest paid over 20 years.[1]

The revenues include property and corporate income taxes paid by Toyota and its supplier firms; personal income taxes paid by employees of Toyota and its suppliers; and sales taxes paid when the employees spend their wages. Current state tax rates were applied to estimates of corporate profits and property holdings, employee wages, and eventual employee purchases. The total revenue generated was calculated to be $73.2 million after 5 years and $632.6 million after 20 years.[2]

In addition, it is commonly assumed that a number of service industry jobs will be created with each new manufacturing job, thus "multiplying" the amount of tax revenue directly generated through the construction and operation of the new manufacturing plant. A

[1]For a detailed explanation of these costs, see, "The Estimated Economic Impact of Toyota on the State's Economy," on page 3 of this publication.

[2]The following assumptions were made: the average annual wage in 1986 for Toyota employees was $30,000 and for the supplier firm employees was $25,000; the average manufactured value of a Toyota automobile was $8,000 in 1986; Toyota will enjoy a profit margin of 5 percent; and inflation will be 3 percent annually. In addition, it is assumed that 1,800 Toyota employees will produce 25,000 automobiles by mid-1988; by 1990, at full production levels, 3,000 persons will produce 200,000 cars. Total gross sales for the supplier firms will be $200 million at full production.

employees will produce 25,000 automobiles by mid-1988. Full employment and production levels will be reached by 1990 at which time 3,000 persons will produce 200,000 automobiles annually.

Estimating actual supplier work force levels is also a key factor in analyzing the direct effects of Toyota in Kentucky. As noted previously, by 1989, "satellite" businesses are estimated to invest $700 million—$250 million in plant and $450 million in machinery—generating an estimated 1,500 new jobs.

Not only will the construction and operation of the Toyota plant directly generate employment opportunities in the manufacturing sector, but the new jobs created will produce *indirect, induced, and derived effects* throughout the economy through increased demand for other products and services, increased wage and salary income in the state, and increased tax revenue. Indirect effects, also known as "multiplied" effects, are felt when goods and services are purchased by Toyota and the various supplier plants. Induced effects arise as employees of Toyota and its supplier plants spend their wages in the area. Derived effects are the eventual additions to the economic service base resulting from the initial location of Toyota and its supplier plants. They include the actual new industries that begin to operate in the region to support the demand created by Toyota and supplier plant employees and their families.

To compute the *total effect* on the state—the sum of the direct, indirect, induced and derived effects—the Regional Input-Output Modeling System (RIMS II), developed by the Bureau of Economic Analysis (BEA) at the U.S. Department of Commerce is used. An "input-output" model, or I-O model, is a computerized tool for economic forecasting built from large numbers of historical time series economic data. The model shows how the output of each industry in a region's economy is distributed among other industries and sectors. It also shows the inputs to each industry from other industries and sectors. By manipulating the appropriate data, the model can be used to show how a change in one sector stimulates production, income and employment in other sectors. Thus, initial effects are "multiplied" throughout the

multiplier of .65, provided by industry analysts, was used in this analysis. Therefore, all direct tax effects generated by Toyota were increased by 65 percent to account for additional tax revenues produced by service industries that will evolve to support the demand created by the employees of Toyota and its suppliers.

Given these assumptions, annual estimates of revenues and costs are computed, providing the inputs into the IRR analysis. One advantage of the IRR analysis is that consideration is given to the timing of revenues and costs. Because a dollar received today is worth more than a dollar received in 20 years (a concept known as the "time-value-of money"), considering *when* revenue is received (and *when* interest payments are paid) is critical. Tax revenues accrue to the state each year beginning with 1986. Although the state will pay interest annually on the bond issues used to finance some of the incentive package, the retirement of the actual bond principal can be postponed until the end of the 20 years.

Figure 1 shows the cumulative net revenues (tax revenues minus costs) that the state will have received at the end of each year. Note that these net revenues are in "present value terms" and thus incorporate the "time-value-of-money" concept. In other words, future dollar amounts are "discounted" so that their amounts reflect their values today.

Using the revenue and cost flows computed, the IRR on the state's investment in Toyota is 25 percent. An IRR that exceeds the current market interest rate is typically viewed as acceptable. Generally, if the IRR is less than the cost of borrowing, then the project is not worthwhile; if it is more, then it is a good investment. In sum, although the $343 million incentive package is a substantial cost to the state, the benefits from the tax revenues generated will likely outweigh this cost.

Figure 1

THE STATE'S INVESTMENT IN TOYOTA
CUMULATIVE NET REVENUES
(IN PRESENT VALUE TERMS)

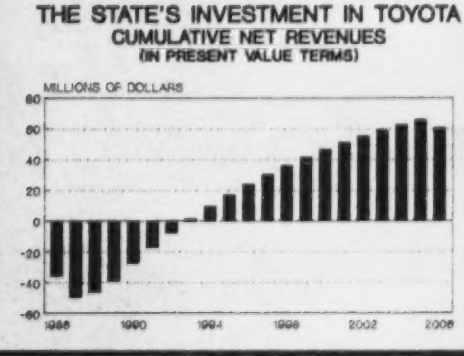

Table 2
Toyota Economic Impact Summary
(1986 = 100)

	Output	Total Earnings	Jobs
	(millions)		
Impact from Construction and Initial Operations[1]	$1,809.7	$551.6	33,315
Due to Toyota	1,189.3	365.6	22,872
Due to Suppliers	620.4	186.0	10,443
Impact at Full Capacity Production Due to Toyota[2]	$3,792.2	$768.5	35,520

Sources: Multipiers used to calculate these results were obtained from the Bureau of Economic Analysis, U.S. Department of Commerce through the Regional Input-Output Modeling System (RIMS II). Output, earnings and jobs estimates used as input data for the RIMS II were generated from interviews with state officials, industry analysts, and company officials from Toyota and supplier plants.

Notes

[1]These figures indicate the total economic effect generated as a result of initial investments made by the state, Toyota and its suppliers' plants and therefore reflect the short-run impact of Toyota's plant location.

[2]These figures reflect the total long-run economic effect resulting from Toyota's anticipated annual peak production level of 200,000 cars.

economy. For this reason, an I-O model is also considered to be a table of "multipliers."

BEA maintains a national I-O model of "multipliers" for each of 531 industries. The Bureau customized this model to fit the Kentucky economy. Many regions, like Kentucky, do not include all 531 industries that are included in the national model. Therefore, by using county earnings data as a reflection of the relative importance (or even absence) of each industry in the region, the multipliers in the model can be adjusted to fit the region under study.

Applying the RIMS model to examine the economic impact of Toyota on the region, and carefully interpreting the results, indicates that Toyota's initial investment of $800 million in plant and machinery, the state's investment of $156.7 million and suppliers' investments of $700 million in plant and machinery could result in a substantial positive impact on the state's economy. As shown in Table 2, by 1988, the total economic effect due only to the construction and initial operations of the Toyota plant and its suppliers' plants, including the state's portion of that investment, may be as large as $1,809.7 million in output, $551.6 million in earnings, and 33,315 jobs.[1] The breakdown of this total indicates that the impact due soley to Toyota (i.e., the impact due to Toyota's initial investment and the state's investment) could be an increase in output of $1,189.3 million, in earnings of $365.6 million, and in 22,872 jobs.

By 1990, when the plant is operating at full capacity, a total of 35,520 jobs may be created throughout the state's economy (including all spending rounds), with the potential of generating $3,792.2 million in output and $768.5 million in earnings annually. These long-run effects include the direct, indirect, induced, and derived effects generated across all industries in Kentucky resulting from Toyota's annual production only.

Table 3
Total Output Generated by Toyota Operating at Peak Production, 1990, by Industry Group
(1986 = 100)

Industry Group	Distribution of Output	Value of output
		(millions)
Agricultural Services	.3%	$ 12.1
Mining	.2	6.1
Construction	.7	25.4
Manufacturing	78.8	2,986.7
Motor Vehicles and Equipment	63.1	2,392.9
Other Durable Manufacturing	9.9	373.5
Nondurable Manufacturing	5.8	220.3
Transportation, Communication and Utilities	3.7	141.8
Trade	6.3	239.7
Finance, Insurance and Real Estate	4.4	167.2
Services	5.6	213.1
Total Output Generated (excluding household wages)	100.0%	$3,792.2*
Household Wages Received		$ 768.5*

Source: Same as Table 1.

Note

*Multiplied effects are only those generated from Toyota's annual productive output. Values were generated based on the following assumptions: that the value of Toyota's peak production will be $1,600 million; that the total output multiplier is 2.3701; and that the wages multiplier is .4803. This means that for every dollar of Toyota's production, total output will increase by 2.3701 dollars and wages will increase by .4803 dollars. Therefore, the total effect on output, $3,792.2 million, equals 2.370 multiplied by $1,600 million, and the total effect on household wages, $768.5 million, equals .4803 multiplied by $1,600 million.

[3]When calculating the multiplied effects of Toyota's and its suppliers' investments in plant and machinery, the very conservative assumption was made that only 60% of all construction materials and 30% of all machinery purchased will be manufactured in Kentucky.

Table 4
Total Jobs Generated by Toyota Operating at Peak Production, 1990, by Industry Group
(1986 = 100)

Industry Group	Job Multiplier (per million $ of output)	Number of Jobs Generated
Agricultural Services	.4	640.0
Mining	.1	160.6
Construction	.4	640.0
Manufacturing	10.7	17,122.4
Motor Vehicles and Equipment	5.9	9,440.0
Other Durable Manufacturing	3.0	4,802.2
Nondurable Manufacturing	1.8	2,880.2
Transportation, Communication and Utilities	.9	1,440.0
Trade	4.2	6,720.0
Finance, Insurance and Real Estate	.7	1,120.0
Services	4.4	7,040.0
Households	.5	800.0
Total Jobs Generated (including households)	22.3[a]	35,683.0[a]

Source: Same as Table 1.

Note

[a]Multiplied effects are only those generated from Toyota's annual productive output. Values were generated based on the assumption that the value of Toyota's peak production will be $1,600 million (200,000 cars @ $8,000) and that the overall jobs multiplier is 22.3 jobs per million dollars of output. Therefore, the total number of jobs generated, approximately 35,683, equals 22.3 multiplied by $1,600 million.

The RIMS model allows for analysis of how the long-run total output and employment generated through Toyota's annual production, is distributed among the various industries in the economy. Tables 3 and 4 show how these effects are truly "multiplied" throughout the economy once peak production has been reached. Sixty-three percent of the total output effect, $2,392.9 million, occurs within the motor vehicle and equipment manufacturing sector, leaving 37 percent of the output effect to be disbursed throughout the rest of the economy. For example, approximately 5.6 percent occurs in the services sector, a reflection of the dollars spent by the employees and families of Toyota and its suppliers on hotels, amusements, eating and drinking places, health services and more.

Conversely, only 26 percent of the total jobs are generated in the motor vehicle and equipment manufacturing sector, with 74 percent created in a variety of other industries. For example, approximately 20 percent of the total jobs generated are in the services sector and 19 percent in the trade sector. Therefore, although potential output generated by Toyota is primarily concentrated in the manufacturing sector, potential jobs are distributed more evenly across several industries.

Conclusion

Our study examines both the short-run and long-run economic impact on the state of the Toyota plant locating in Kentucky. In the short-run, the initial investments made by the state, Toyota, and its suppliers could generate an increase in output of $1,809.7 million as well as 33,315 new jobs. In the long-run, Toyota's full capacity production could increase output in the state by $3,792.2 million and the number of jobs by 35,520.

Although our results indicate that in both the short-run and the long-run, Toyota's locating in Kentucky could result in a net positive impact on the state's economy, these predictions are not necessarily self-fulfilling. They should not provide policymakers the justification for ceasing their efforts to aid Kentucky or attract industry from outside the borders. However, they should encourage Kentucky's policymakers to capture as many of the benefits of Toyota as possible and to continue efforts to make the Commonwealth an attractive site for industrial location.

selected indicators OF ECONOMIC ACTIVITY

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	Oct. 1986	Nov. 1986	Dec. 1986	Qtr. IV 1986	% Chg. 86-III 86-IV	% Chg. 85-IV 86-IV
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ALL ITEMS (NEW DEF)	330.50	330.80	331.10	**330.80**	0.57	1.32
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, FOOD AND BEVERAGES	315.60	316.40	317.00	**316.33**	0.75	4.09
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, HOUSING (INCL RENTAL EQUIV)	363.00	361.70	362.10	**362.27**	-0.07	2.03
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, APPAREL AND UPKEEP	213.20	213.10	210.90	**212.40**	2.39	0.93
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, TRANSPORTATION	302.60	304.30	304.80	**303.90**	0.39	-5.83
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, MEDICAL	442.30	444.60	446.80	**444.57**	1.65	7.71
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, ENTERTAINMENT	276.50	277.40	277.40	**277.10**	0.84	3.18
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, OTHER	354.60	354.90	355.20	**354.90**	1.92	5.76
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, SPECIAL INDEX: ENERGY	348.60	341.70	342.40	**344.23**	-4.88	-19.24
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL COMMODITIES	298.40	298.70	298.10	**298.40**	0.35	-3.49
PRODUCER PRICE INDEX, ALL FINISHED GOODS	290.70	290.70	289.90	**290.43**	0.96	-1.91
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	285.20	285.00	284.20	**284.80**	0.78	-3.14
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	304.80	304.90	305.00	**304.90**	-0.08	-4.18
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	296.40	296.50	296.20	**296.37**	0.15	-0.50
PRODUCER PRICE INDEX, CRUDE MATERIALS	277.20	278.40	274.80	**276.80**	0.12	-8.43
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	235.00	235.90	232.80	**234.57**	-0.33	0.82
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, SPOT(1967=100)	428.30	428.40	423.00	**426.57**	-0.68	-1.20
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, CONTRACT(JUNE76=100)	150.10	149.70	149.90	**149.90**	-0.57	-1.45
PRODUCER PRICE INDEX, ALL CONSTRUCTION MATERIALS	310.00	309.90	308.80	**309.57**	-0.06	0.01
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	25.79	24.11	26.07	**24.66**	-5.15	-5.96
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	58.39	54.79	54.95	**56.04**	-6.18	-6.35
AVG PRICE FOR ELECTRICITY, PER 500 KWH	40.21	39.89	39.81	**39.97**	-5.18	0.13
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	0.73	0.73	0.75	**0.74**	0.14	-33.45
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	0.84	0.83	0.83	**0.83**	-4.33	-30.76
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	0.77	0.76	0.76	**0.77**	-4.17	-31.70
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	0.83	0.82	0.82	**0.82**	-4.55	-31.63
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	0.99	0.98	0.98	**0.98**	-3.37	-26.68
LABOR FORCE (SEASONALLY ADJUSTED, MILLIONS OF PERSONS)						
LABOR FORCE, TOTAL (INCL RES ARMED FORCES)	120.16	120.43	120.34	**120.31**	0.37	2.05
LABOR FORCE, CIVILIAN (EXCL RES ARMED FORCES)	118.41	118.67	118.59	**118.56**	0.33	2.04
EMPLOYMENT, RESIDENT ARMED FORCES	1.75	1.75	1.75	**1.75**	3.26	2.92
EMPLOYMENT, TOTAL CIVILIAN	110.59	110.43	110.64	**110.42**	0.40	2.27
EMPLOYMENT, AGRICULTURE	3.16	3.21	3.16	**3.18**	2.31	2.80
EMPLOYMENT, NONAGRICULTURAL	107.03	107.22	107.48	**107.24**	0.34	2.25
UNEMPLOYED, CIVILIAN, TOTAL	8.22	8.24	7.95	**8.14**	-0.64	-0.93
UNEMPLOYMENT RATE, TOTAL LABOR FORCE	6.90	6.90	6.70	**6.76**	-1.01	-2.92
UNEMPLOYMENT RATE, CIVILIAN LABOR FORCE	6.90	6.90	6.70	**6.86**	-0.97	-2.91
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG, ANNUAL RATE)	NA	NA	NA	**4258.70**	1.71	4.18
U.S. REAL GROSS NATIONAL PRODUCT (B 82$) (% CHG, ANNUAL RATE)	NA	NA	NA	**3696.10**	1.06	2.04
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)(% CHG, ANNUAL RATE)	3517.80	3523.30	3542.70	**3528.00**	3.38	4.34
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	180.90	182.50	186.80	**183.40**	2.00	6.57
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1977=100)	125.30	126.00	126.70	**126.00**	0.83	1.07
AVERAGE PRIME RATE CHARGED BY BANKS ON SHORT-TERM BUSINESS LOANS	7.50	7.50	7.50	**7.50**	-4.50	-21.05
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	5.18	5.35	5.49	**5.34**	-3.49	-25.28
PRIVATE HOUSING UNITS AUTH. 17000 PERMIT-ISSUING PLACES (SADJ THOU)	1565.00	1613.00	1910.00	**1696.00**	4.30	-2.34
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	593.65	597.55	603.23	**603.23**	2.43	11.05

KENTUCKY DATA

	Oct. 1986	Nov. 1986	Dec. 1986	Qtr. IV 1986	% Chg. 86-III 86-IV	% Chg. 85-IV 86-IV
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1734.50	1780.30	1695.80	**1736.87**	1.28	1.39
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1614.80	1584.30	1548.50	**1582.53**	0.25	1.47
EMPLOYMENT, AGRICULTURAL	83.00	68.10	53.10	**68.07**	-7.45	-8.99
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1531.80	1516.20	1495.40	**1514.47**	0.73	1.49
UNEMPLOYMENT RATE	6.90	7.90	8.70	**7.73**	-2.71	-13.70
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1296.40	1301.90	1303.80	**1300.70**	1.79	2.58
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	37.30	37.40	37.70	**37.47**	-2.09	-0.53
EMPLOYMENT, CONTRACT CONSTRUCTION	67.50	68.00	65.90	**67.13**	-0.10	10.72
EMPLOYMENT, TOTAL MANUFACTURING	251.70	252.20	254.80	**252.90**	0.49	-0.36
EMPLOYMENT, MANUFACTURING, DURABLE	135.90	136.60	136.80	**136.43**	0.15	-0.61
EMPLOYMENT, MANUFACTURING, NON-DURABLE	115.80	115.60	118.00	**116.47**	0.90	-0.11
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	68.50	69.10	70.00	**69.20**	2.32	2.62
EMPLOYMENT, WHOLESALE & RETAIL TRADE	308.80	312.20	314.30	**311.77**	2.44	3.02
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	61.70	61.60	61.70	**61.67**	-0.22	5.41
EMPLOYMENT, SERVICES (SIC 70-80)	257.00	257.60	256.10	**256.90**	1.38	2.52
EMPLOYMENT, CIVILIAN GOVERNMENT	238.60	238.70	238.40	**238.57**	4.54	3.39
EMPLOYMENT, STATE & LOCAL GOVERNMENT	198.50	198.50	198.40	**198.47**	5.54	4.27
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	39.30	40.00	40.20	**39.83**	2.05	0.67
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DUR	40.40	41.20	41.50	**41.03**	2.75	2.24
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	38.10	38.60	38.60	**38.43**	1.32	-1.20
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	9.93	10.07	10.04	**10.01**	1.11	4.05
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	10.45	10.67	10.62	**10.58**	0.99	3.29
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	9.30	9.33	9.33	**9.32**	1.27	5.11
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	390.25	402.80	403.61	**398.89**	3.19	4.76
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	422.18	439.60	440.73	**434.17**	3.77	5.41
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	354.33	360.14	360.14	**358.20**	2.61	3.86
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	10.41	9.10	8.88	**28.39**	-10.74	-1.72
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	3.58	3.13	3.06	**9.77**	-0.02	-0.03
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	16.47	17.00	16.34	**16.60**	-2.05	7.44
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	452.93	452.20	462.42	**455.85**	1.75	1.80
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	27.50	26.60	28.30	**27.47**	3.91	-5.28
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	16.95	16.36	14.94	**48.25**	*	5.58
HOUSING (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-	248.30	176.70	139.20	**564.20**	-27.05	8.46
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, 1 UNIT	753.00	483.00	405.00	**1641.00**	-26.11	22.74
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, 1 UNIT	50.86	30.78	25.50	**107.14**	-22.83	40.94
HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTHORIZED, TOTAL	1504.00	1037.00	610.00	**3151.00**	-20.83	18.04
VALUATION, HOUSING UNITS, PRIVATE STRUCTURES, PERMIT AUTH, TOTAL	72.84	47.29	37.47	**157.60**	-11.83	29.54
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	84.60	81.71	79.93	**246.25**	*	0.98
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	9.44	6.66	9.32	**25.43**	*	6.46
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL	215.90	270.51	286.93	**773.34**	*	5.29
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	74.56	75.71	73.73	**224.01**	*	2.36
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	73.86	76.98	75.66	**226.51**	*	8.99
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	14.25	3.77	56.92	**74.95**	*	47.33
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	46.53	39.08	63.51	**149.11**	*	46.39
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	23.09	16.00	32.51	**71.60**	*	59.32
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	18.03	11.01	11.81	**40.85**	*	13.53

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 17,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

Socioeconomic Impacts of Toyota on Scott County

by C. Theodore Koebel, Michael L. Price, John P. Nelson, Julia I. Lane and George M. Chapman*

Estimates of the socioeconomic impacts on Scott County and the surrounding region resulting from the Toyota plant location were commissioned by the Commonwealth of Kentucky in July 1986. The study was conducted by the University of Louisville's Urban Studies Center and the Bureau for Economic Research, with assistance from Chapman and Company, and its results provided estimates of construction and operations impacts from Toyota on population, business, land use, and government.[1]

The study incorporated all information available from Toyota and the general contractor, Ohbayashi Corporation, with previously published data used whenever data from these sources were not available. Primary data were collected from three different surveys and through interviews with officials of Toyota, Ohbayashi, local governments and local businesses. In addition, the documented impacts of recent automotive plants locating in this region (Nissan in Tennessee, Corvette in Kentucky, Honda in Ohio, and General Motors in Illinois) were reviewed to provide insight into the range of impacts on these communities. The Nissan plant provided a particularly important comparison since it is located in a relatively small county within a metropolitan area (it is 15 miles southeast of Nashville) and has been in operation since 1983.

Impact on Population

One primary impact of the Toyota plant and the increased employment demand generated will be on population relocation and subsequent population growth. The employment schedule estimated by Toyota for the Scott County plant calls for 1,920 workers by January 1988, with employment peaking at 3,000 during the next year. By October 1986, over 40,000 applications had been received at state offices throughout Kentucky for positions at the Toyota plant. A random survey of applicants was conducted in October and November of 1986 to assess anticipated population impacts for Scott County resulting from direct employment at the Toyota plant.

Most applicants for these positions (82.9 percent) are Kentuckians. Other states significantly represented are Ohio (4.7 percent), West Virginia (2.6 percent), Indiana (1.9 percent) and Tennessee (1.4 percent). Within Kentucky, the geographical distribution of applicants was concentrated in Scott County and its seven adjacent counties (Bourbon, Fayette, Franklin, Grant, Harrison, Owen and Woodford), and in the state's major urban areas. The local region represented 36.7 percent of applicants for managerial positions, 23.7 percent of applicants for skilled worker positions and 22.5 percent of unskilled worker applications. Jefferson County represented 10.4 percent of all applicants. Fayette County alone accounted for 25.5 percent of all managerial applications.

A high proportion of applicants would relocate if hired (59 percent), with most preferring Scott County (55 percent) or Fayette County (23 percent). Actual relocation will depend on where those who are ultimately hired are located. In projecting relocation and related population impacts, two scenarios were made based on the following alternate assumptions: (1) all applicants have an equal chance of being hired and therefore, those hired would be distributed the same as applicants; or, (2) those living in Scott County or one of the seven adjacent counties would have twice the probability of being hired as those living farther away.

Table 1 shows the projected population of Scott County resulting from the relocation patterns under the two varying scenarios. Under Scenario 1, 925 Toyota workers would relocate to Scott County by 1989, with a total population impact of 2,477 from these households. Of this total increase, it is projected that 551 spouses and 1,001 children will be moving to Scott County with the 925 relocating workers.

The direct population impacts under Scenario 2 are estimated at 693 Toyota workers, 415 spouses and 743 children, for a total impact of 1,851 people. In both

[1] Koebel, C.T. et. al., *Impacts of the Toyota Plant on Scott County, Kentucky*. (Louisville, Kentucky: University of Louisville), 1987.

*C. Theodore Koebel is Deputy Director, and Michael L. Price is Director, Population Studies Program, with the Urban Studies Center, University of Louisville. John P. Nelson is Director, Bureau of Economic Research, University of Louisville. Julia I. Lane is Assistant Professor of Economics, School of Business, University of Louisville. George M. Chapman is President, Chapman and Company, Louisville.

Table 1
Projected Number of Persons Relocating in Scott County by 1989

Job Type	Toyota Employees	Spouses	Children	Total
Managerial				
Scenario 1	57	42	54	153
Scenario 2	44	32	42	118
Skilled Workers				
Scenario 1	168	123	227	518
Scenario 2	117	90	153	360
Unskilled Workers				
Scenario 1	700	386	720	1,866
Scenario 2	532	293	548	1,373
Total				
Scenario 1	925	551	1,001	2,477
Scenario 2	693	415	743	1,851

Source: Urban Studies Center, University of Louisville.

scenarios, a majority of the Toyota workforce will be commuting from outside Scott County. In Scenario 1, 109 workers will be hired from Scott County. An additional 925 workers will relocate to Scott County comprising a total of 1,034 workers or 34.5 percent of the Toyota workforce. The remaining number of anticipated Toyota employees, 1,966 or 65.5 percent, will commute into the county. In Scenario 2, only 29.6 percent of the Toyota workers will live in Scott County and 70.4 percent will commute from outside the county.

Population growth could also be stimulated by satellite development related to the Toyota plant and by increased employment in services, retail trade, and other population-serving businesses. The employment multiplier estimated for this analysis was 1.44, i.e., for every 100 Toyota jobs, almost 44 additional jobs in secondary employment will be created in Scott County. By 1991, approximately 1,281 new jobs will have been created by the full multiplier effect. In addition, the population is expected to grow through natural increase as the number of births to long-term residents and new arrivals is expected to exceed the number of local resident deaths. Accounting for all these factors, total population projections were made for Scott County to 1995. These are summarized in Table 2.

Under Scenario 1, total population in Scott County is projected to increase from 1985 to 1990 by 4,198 persons, or 19.2 percent. In Scenario 2, for the same period, the population is expected to increase by only 3,524 persons, or 16.1 percent. Population growth from 1990 to 1995 is projected to be slower than the previous 5 years with an increase of 7.1 percent under Scenario 1 and 6.9 percent under Scenario 2. Regardless of the scenario, the location of Toyota in Scott County will significantly increase the county's resident population.

Impact on New Business Locations

Industrial impacts will result in part from the direct purchases of products for the construction and operation of the Toyota plant. The location of the Toyota plant will influence the future locations of its suppliers. Several firms have already built or plan to build automotive supply plants in Kentucky in anticipation of serving the Toyota plant or other automotive assembly plants in Kentucky and Tennessee. Overall, these plants represent an investment estimated at $225 million and have the potential to employ approximately 1,875 persons.

Toyota recently announced its estimate of annual domestic supply purchases at $650

Table 2
Population Projections: Scott County, Kentucky

Year	Population Bases	Toyota Impact	
		Scenario 1	Scenario 2
1980	21,813		
1981	21,826		
1982	21,769		
1983	21,726		
1984	21,681		
1985	21,914		
1986	22,097	22,202	22,202
1987	22,268	23,022	22,887
1988	22,479	24,380	23,978
1989	22,676	25,720	25,063
1990	22,881	26,112	25,438
1991	23,082	26,498	25,807
1992	23,281	26,879	26,171
1993	23,474	27,250	26,525
1994	23,661	27,610	26,869
1995	23,840	27,957	27,200

Source: Urban Studies Center, University of Louisville.

million to be purchased from companies in 14 states which were centered on Kentucky, Michigan, Ohio and Indiana. Domestic suppliers already identified by the company include: Sheller Globe of Toledo, Ohio; Van Dresser of Troy, Michigan; GM Delco Division of Dayton, Ohio; GKN of Southfield, Michigan; and, GKN of St. Paul, Minnesota. Toyota also announced that it will purchase about $50 million worth of parts annually from 12 suppliers located in Kentucky.

In order to assess the potential for continued related development, a survey was conducted among automotive parts manufacturers within the United States. The survey measured the firms' potential interest in development of a new location; the factors influencing the choice of location, and the relative strengths of Kentucky and Tennessee on important location factors.

Many companies can supply the Toyota plant within their existing market areas without relocating. However, if an automotive suppply manufacturer is seeking a new location, central Kentucky is a strategic location for serving both the north central and southern United States. Based on survey responses, a massive relocation of automotive supply manufacturers is not expected. However, a significant number of the respondents either had a move underway (6 percent) or anticipated one as a future goal (9 percent); over 40 percent said they were considering the possibility of, or occasionally discussed, moving to a new location. Less than half of the respondents said they had no interest in a new location.

Nearly one in five respondents indicated that they were considering or had considered Kentucky and Tennessee for a potential plant site and an additional 9 percent had definite plans to locate in this area. Based on the responses to this survey alone, another 20 to 30 automotive plants could be potential relocators. If Kentucky attracts one fourth of these, it could gain five to seven new plants or 1,400 to 2,000 jobs. Such an increase would reflect the agglomeration effect of all the assembly plants in the region and of the moving of manufacturing away from large metropolitan areas in the North.

Table 3
Potential Single-Family Housing Available in Scott County

Price Range	Total Vacant Development Lots	Total Undeveloped Lots
$50,000 – $65,000	49	72
$65,000 – $85,000	178	50
$85,000 – $100,000	81	551
$100,000 and over	205	496
Total	473	1,169

Sources: Chapman and Company (Louisville, Kentucky) and Scott County Building Inspector's Office.

Impact on Land Use

Currently, little excess single-family housing stock exists in Scott County relative to the current demand. Therefore, the demand for single-family housing expected to be generated by the Toyota plant location cannot be met with the existing stock. In Georgetown, Stamping Ground and Sadieville (all located in Scott County), approximately 513 vacant developed lots are situation in subdivisions where housing prices range from $50,000 to over $100,000. Enough undeveloped acreage remains in these subdivisions to allow approximately 1,169 additional lots. Thus, as summarized in Table 3, approximately 1,682 lots can quickly be made available for the construction of single-family housing in Scott County.

All of these lots are not expected to be used to meet anticipated future demand. To determine the distribution of market activity for housing in the various price ranges, residential market activity was analyzed in these Scott County subdivisions for the last three years. Table 4 shows the market absorption projections for single-family housing based on the potential for development as well as past market activity. In the $50,000 to $65,000 price range there are 121 lots available and 101 are expected to be absorbed. In the $65,000 to $85,000 price range there are 228 lots available; 177 are expected to be absorbed. The $85,000 to $100,000 price range has 632 lots, of which 623 are likely to be absorbed. Available lots in the $100,000 and greater price range total 701, with 644 expected to be absorbed. A sum of these figures results in 1,544 lots expected to be absorbed out of a possible 1,682 lots available, or approximately a 92 percent absorption forecast for existing subdivisions.

Approximately 1,650 units of rental housing are projected to be in demand under Scenario 1. Since construction of 1,880 to 2,360 units of multifamily rental housing is currently proposed in Scott County, no additional land should need to be converted to

Table 4
Market Absorption Projections for Single-Family Housing in Scott County

Price Range	Potential Housing Purchases	Actual Housing Purchases Projected	Projected Percent of Potential Purchased
	(Units)		
$50,000–$65,000	121	101	83.5%
$65,000–$85,000	228	177	77.6
$85,000–$100,000	632	623	98.6
$100,000 and over	701	644	91.9
Total	1,682	1,544	91.8%

Source: Chapman and Company (Louisville, Kentucky) and Urban Studies Center, University of Louisville.

residential use for multifamily units due to growth projected through 1990.

Approximately 280 acres of land in Scott County are currently proposed for commercial development. Since there is an estimated need for only 28 acres of land for commercial use generated by the impact of the Toyota plant, the proposed commercial development should more than satisfy commercial demand. One site appears as the most likely location for large-scale commercial development. This is a site near I-75 and U.S. 62. Additional commercial development may take place in the southern part of Georgetown. The anticipated residential development in this area may encourage developers to build facilities for convenience goods and services. These stores will probably be located at intersections on the proposed "southern bypass" where access ramps are to constructed.

Enough land is presently designated for industrial use in Scott County to support industrial development through 1990. Automotive industrial development, with one exception, is not expected to occur during this time as a result of the Toyota plant. Based on our analysis, current land areas designated for residential, commercial and industrial use should be sufficient to meet the anticipated growth and development resulting from the Toyota plant.

Impact on Local Government

Despite the 50 percent growth in revenues projected for Georgetown over the next five years, the anticipated 25 percent population explosion during this time will still present potential problems for the city's budget. If inflation stays between 3 to 5 percent annually, the estimates indicate that Georgetown will have little change in its ability to supply services to the taxpayers over the next five years. Georgetown's budget will probably be no better off on a per capita basis because of the estimated growth in jobs and population. If inflation stays under 5 percent, Georgetown will not have a lower per capita budget in "real" dollars in fiscal year 1990-91 but there will be little opportunity to increase capital spending. On the other hand, Scott County is expected to experience substantial increases in revenues, permitting the expansion of governmental services at that level.

School district revenues are projected to more than double between the 1986-87 and 1990-91 fiscal years. The problem facing the school district lies not so much in long-term revenues but in revenues lagging behind the need to expand school capacities. Population increase and school enrollments are likely to occur one to two years ahead of a corresponding increases in per pupil revenues. This problem, if not resolved, will lead to severely overcrowded schools in the next two years. Some early means of financing school construction or otherwise providing adequate educational resources for the increase in students projected for 1989 and 1990 will likely be needed.

Japanese Direct Industrial Investment In Kentucky, by County

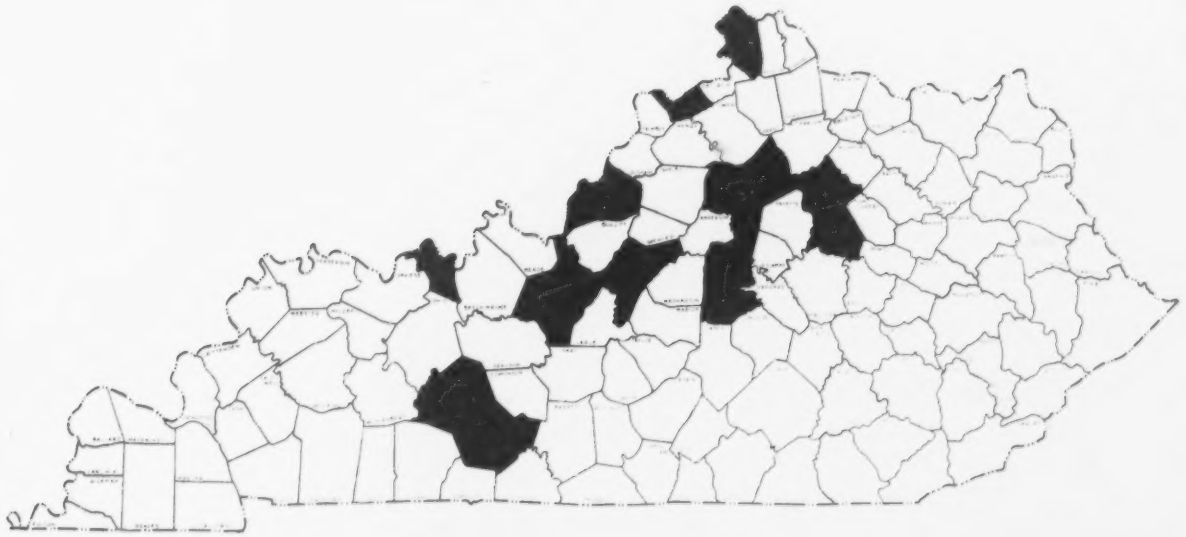

Table 1
Japanese Direct Industrial Investment in Kentucky, by County

County	Number of Plants	Total Anticipated Employment
Boone	2	285
Bourbon	1	100
Boyle	1	706
Butler	1	100
Carroll	1	183
Clark	1	15
Franklin	1	80
Hancock	1	150
Hardin	1	100
Jefferson	2	386
Mercer	1	450
Nelson	3	310
Scott	2	3,040
Warren	1	50
Woodford	1	300
Total	20	6,255

Source: Kentucky Commerce Cabinet.
Note: Figures current as of March 1987.

Recent figures released by the Kentucky Commerce Cabinet describing Japanese direct industrial investment in Kentucky, indicate some of the direct effects associated with the location of the Toyota plant in Scott County. Twenty Japanese plants, including Toyota, have announced plans to locate in Kentucky. These plant locations represent $1,109.5 million in total investment and 6,255 in anticipated total employment.

The counties in which these plants are expected to locate are darkened on the above map to highlight their distribution across 15 counties, located primarily in central Kentucky and along a "corridor" from Jefferson County to Warren County. Table 1 provides a more detailed description of the number of plants anticipated to locate in each county as well as each county's anticipated increase in employment. Although almost half of the total anticipated employment will occur in Scott County, other Kentucky counties will also experience significant employment benefits.

INFORUM

Since 1980 there has been a five-fold increase in Japan's exports of automotive parts to the United States—from $480 million in 1980 to $2.5 billion in 1985 (see *Japanese Auto Industry Moving into the U.S.A.*). With Toyota's decision to come to Kentucky, as well as an increase in overall Japanese investments in the U.S., there has been a growing interest in U.S. suppliers linking with the Japanese to penetrate the foreign market and stay competitive. Conferences and seminars are springing up all over the mid-west on state incentives, selling to the Japanese, and coordinating joint ventures in an effort to inform American suppliers and stimulate their production. The University of Kentucky's, College of Business and Economics, sponsored a conference on "Strategies for Doing Business with Japanese Companies," May 11, 1987 at the Lexington Marriott Resort. The U.S. Department of Commerce sponsored a conference in Indiana, May 27-28, 1987, called "Selling to Japan," featuring the president of Toyota along with a host of others in automotive manufacturing in the mid-west. Bob Reck with the U.S. Department of Commerce in Washington has additional information.

Information sources on Japanese investments, management systems, and general cultural facts are in great demand and somewhat hard to locate due to the lack of any centralized information center and the speed with which these interests have grown. The following sources are listed for those seeking current additional information on Japan.

* * * *

JAPAN ECONOMIC INSTITUTE (JEI) publishes monthly reports to highlight developments within the Japanese economy and those effecting U.S.-Japanese relations. They also publish a monthly review, *Japan Economic Survey*, and sponsor seminars, colloquia and conferences to bring Americans and Japanese together for discussion. For more information contact the JEI, 100 Connecticut Avenue, NW, Washington, DC 20036.

THE JAPAN FOUNDATION in Tokyo has a New York office, and publishes a monthly newsletter that features research reports, cultural highlights, publications lists, and foundation activities. For more information, contact the Japan Foundation, New York Office, 342 Madison Avenue, Suite 1702, New York, NY 10173.

HARVARD BUSINESS SCHOOL PUBLISHING DIVISION publishes "Background Notes," which are short articles explaining management techniques, business concepts, and data on particular industries. Their note on **Japanese Management and Employment Systems** describes the Japanese approach to management and the underlying forces that have shaped their system. **Reflections on Japanese Factory Management** focuses on how the Japanese manage their manufacturing functions. For additional information, contact the Publishing Division in Boston at (617) 495-6192.

Japanese Auto Industry Moving into the U.S.A., a research report published in July 1986, by the Economics Division of the Long-Term Credit Bank of Japan, Ltd., is an excellent source for figures on direct Japanese investment, trends of supply and demand, production in North America by Japanese automakers and background information and concerns of the Japanese parts suppliers in their move to the United States. Other research publications include, *The Japanese Auto Industry: Active in Research and Development* and *The Auto Parts Industry of Japan: Facing the Challenge of Internationalization and Technical Innovation*. They have branch offices all over the world, including Chicago and New York.

Beyond National Borders: Reflections on Japan and the World. Free trade advocate, Kenichi Ohmae, of the Japanese arm of consulting firm McKinsey & Co., discusses the trade imbalance between Japan and the U.S., claiming that it is not as serious as it is being presented. He claims that U.S. government statistics ignore billion of dollars in sales from U.S. subsidiaries inside Japan. Book from Dow Jones-Irwin, 1818 Ridge Road, Homewood, IL 60430. ISBN #1-55623-017-6.

The Spring 1987 issue of *Forum for Applied Research and Public Policy* focuses on the Saturn plant location—the joint automotive venture between Nissan and General Motors—in the small, rural community of Spring Hill, Tennessee. The volume includes a series of articles which address the issues surrounding Saturn's location. William F. Cox, Director of the Center for Business and Economic Research at the University of Tennessee, and C. Warren Neel, the University of Tennessee's Dean of the College of Business, discuss critical factors affecting GM's location decision. In two other articles, contrary points of view are presented regarding the long-term benefits to the local and state economies. Anthony Borden discusses his perception of the financial risks and burdens to Spring Hill, Tennessee resulting from the plant location. On the other hand, Timothy Bartik, Assistant Professor of Economics at Vanderbilt University, and his co-authors, praise the state's efforts in attracting the Saturn project and claims there will be substantial benefits to the state.

—Lucinda R. Zoe, Information Specialist

News & Notes

The Kentucky Economic Association (KEA) will be holding its thirteenth annual meeting on Friday, September 18, 1987. The meeting will be in Frankfort at the Capital Plaza Hotel. For further information, please contact the Program Chairman, Richard Crowe, Hazard Community College, Hazard 41701, (606) 436-5721 or the KEA President, William Baldwin, Eastern Kentucky University, Richmond 40475, (606) 622-1769.

* * * *

In accord with the University of Kentucky's mandate to analyze the performance of the Kentucky economy, the Center for Business and Economic Research is currently in the process of preparing the *Commonwealth of Kentucky Annual Economic Report—1986*. Professor Don M. Soule, Department of Economics, University of Kentucky, will author this year's report which is planned for distribution in early summer 1987. The report provides analyses of Kentucky's economic and financial characteristics including adjustments in Kentucky's population, labor force, earnings per worker, income, employment, and governmental revenues and expenditures.

This year's report will include an extended analysis of employment adjustments within the major industrial sectors and associated sub-groups (at the 2-digit SIC code level). This more detailed analysis will also provide comparisons between the goods-producing and services-producing industries. In addition, this year's report will include a special study on the financing of public transportation.

Many of you are already on the mailing list to receive the *Annual Economic Report*. To place your order for the 1986 edition, please fill out the order form included in this issue. The report is available for $15; there is no charge for single copies to persons in government, academics, libraries, or others in the nonprofit sector.

* * * *

The College of Business and Economics, University of Kentucky, sponsored the first Kentucky World Trade Issues Conference, May 18-19, 1987, at the Galt House East in Louisville. Our co-sponsors were the Kentucky Commerce Cabinet and the U.S. Department of Commerce, International Trade Administration. In addition, several cooperating organizations throughout the state associated with international trade activities contributed to the planning of this Conference.

The Conference was designed to bring together businessmen, government officials and members of the academic community, to discuss contemporary world trade issues. Topics of discussion included **Trade Policy in the U.S.**, **Assessing International Political Risk**, **Trends in Global Finances: Turmoil of the Trade Deficit**, **International Markets of the Future**, **and Cultural Do's and Don'ts.** Program speakers included representatives from the Office of the U.S. Trade Representative and the U.S. Department of Commerce, Governor Martha Layne Collins, Senator Mitch McConnell, Lewis Griggs from **Going International**, and leading experts in the areas of political risk analysis and economic policy.

The conference was a great success thanks to all those who supported and participated in it.

—jbs

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REVIEW & PERSPECTIVE

STATISTICAL SUPPLEMENT

Summer 1987 Vol. 11, No. 2

College of Business and Economics University of Kentucky

Monthly-Employment Data May 1986-April 1987 United States and Kentucky

Table 1
Non-Agricultural Wage and Salary Employment, United States and Kentucky, Seasonally Adjusted May 1986-April 1987

Month/Year		Total[1]		Goods-Producing Industries		Services-Producing Industries	
		US	KY	US	KY	US	KY
		(thousands)					
May	1986	99389	1273	24708	354	74681	922
June	1986	99323	1273	24628	352	74695	924
July	1986	99601	1288	24628	352	74973	936
Aug.	1986	99772	1279	24639	352	75133	933
Sept.	1986	100039	1280	24620	351	75419	932
Oct.	1986	100209	1283	24611	353	75598	935
Nov.	1986	100415	1288	24630	356	75785	937
Dec.	1986	100567	1293	24630	358	75937	937
Jan.	1987	100919	1301	24708	364	76211	940
Feb.	1987	101150	1305	24743	363	76407	945
March	1987	101329	1304	24749	364	76580	943
April	1987	101598	1298	24759	358	76839	941

Sources: U.S. Department of Labor, Bureau of Labor Statistics and the Kentucky Department of Human Resources; through the Kentucky Economic Information System (KEIS).

Note

[1]Totals may not always equal the sum of the parts due to rounding errors in the seasonal adjustment process.

•In April 1987, total nonagricultural wage and salary employment in the United States was 101.6 million, and in Kentucky it was 1.3 million. From June 1986 to April 1987, total U.S. employment increased slightly each month. Specifically, the percent change from May 1986 to April 1987 was 2.2 percent.

•Overall, the percent change in total Kentucky employment from May 1986 to April 1987 was 2.0 percent. Employment in Kentucky increased slightly each month from June 1986 to February 1987 but monthly figures for March and April of this year indicate a slight decrease occurred.

•In April 1987, approximately 24 percent of total U.S. employment was in goods-producing industries and 76 percent in services-producing industries. For Kentucky, approximately 28 percent was in goods-producing industries and 72 percent in services-producing industries. These major sectoral breakdowns were much the same as those in May 1986, for both the U.S. and Kentucky.

•Employment in the goods-producing industries increased very little during this period for both the U.S. and Kentucky. Growth in the services-producing industries was also fairly small although slightly higher than growth in the goods-producing industries.

•Furthermore, monthly employment figures for Kentucky in the goods-producing industries were fluctuating over this period whereas monthly employment figures in the services-producing industries were consistently increasing. The only exception to this upward trend in the services-producing industries was for March and April of this year when there was a slight decline. Generally, U.S. employment in both the goods-producing and services-producing industries w is consistently increasing during this period.

Table 2
Non-Agricultural Wage and Salary Employment in Goods-Producing Industries, United States and Kentucky, Seasonally Adjusted May 1986-April 1987

Month/Year	Mining		Construction		Manufacturing	
	US	KY	US	KY	US	KY
	(thousands)					
May 1986	786	44	4910	57	19012	253
June 1986	769	44	4900	56	18959	252
July 1986	764	43	4924	56	18940	253
Aug. 1986	748	43	4946	56	18945	253
Sept. 1986	739	43	4948	56	18933	252
Oct. 1986	735	43	4942	58	18934	252
Nov. 1986	730	43	4946	59	18954	254
Dec. 1986	724	43	4936	60	18970	255
Jan. 1987	718	40	5034	67	18956	257
Feb. 1987	719	40	5038	67	18986	256
March 1987	722	40	5032	66	18995	258
April 1987	729	39	5019	63	19011	256

Source: Same as Table 1.

•Mining employment in both the U.S. and Kentucky declined over the past year. Based on the percentage change, the decline was less substantial nationally than in Kentucky. However, both demonstrated a consistent monthly pattern of decline.

•Overall, employment in construction increased in both the U.S. and Kentucky. However, the monthly figures did not consistently increase over the period.

•Manufacturing employment in the U.S. remained approximately the same and increased only slightly in Kentucky.

•Employment in transportation, communication, and public utilities increased from 5.25 million to 5.35 million in the U.S., approximately 2.0 percent, and increased from 66,000 to 70,000 in Kentucky, approximately 6.0 percent.

•Employment in finance, insurance and real estate grew approximately 5.0 percent for both the U.S. and Kentucky, making it one of the fastest growing sectors. Employment in the services sector also grew relatively more than most other sectors; approximately 4.1 percent in the U.S. and 3.4 percent in Kentucky.

•Generally, employment in Kentucky followed a pattern of slow growth from May 1986 to June 1987, similar to that in the United States. The only declining sector was mining. All other sectors maintained their May employment levels or increased slightly.

—jbs

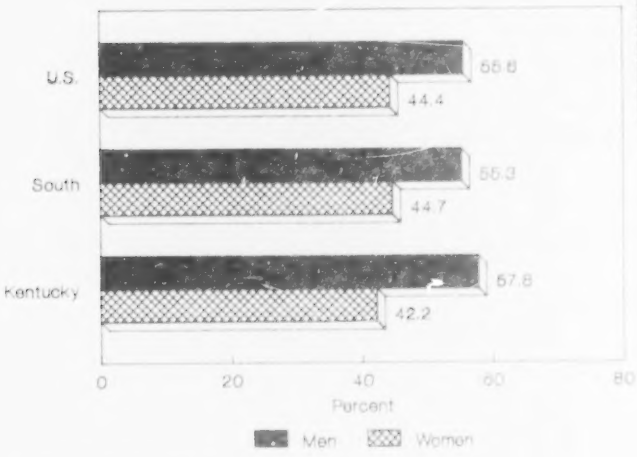
Table 3
Non-Agricultural Wage and Salary Employment in Services-Producing Industries, United States and Kentucky, Seasonally Adjusted May 1986 – April 1987

Month/Year	Transportation, Communication, and Public Utilities		Wholesale Trade		Retail Trade		Finance, Insurance, and Real Estate		Services		Government	
	US	KY	US	KY	US	KY	US	KY	US	KY	US	KY
	(thousands)											
May 1986	5247	66	5749	63	17798	238	6257	59	22971	258	16659	238
June 1986	5142	66	5712	63	17821	239	6287	59	23080	259	16653	238
July 1986	5237	67	5735	63	17866	240	6323	60	23202	259	16610	247
Aug. 1986	5202	67	5736	63	17913	240	6351	61	23284	260	16620	242
Sept. 1986	5255	67	5736	63	17939	241	6374	60	23317	262	16798	239
Oct. 1986	5251	68	5731	63	17980	243	6395	61	23369	262	16872	238
Nov. 1986	5278	69	5728	63	18009	243	6418	61	23452	264	16900	237
Dec. 1986	5286	69	5725	63	18007	242	6451	60	23544	265	16924	238
Jan. 1987	5304	71	5741	62	18080	244	6480	61	23670	265	16936	237
Feb. 1987	5315	70	5757	64	18140	245	6501	62	23759	266	16935	2?8
March 1987	5333	70	5766	63	18136	244	6526	62	23842	266	16977	2.
April 1987	5348	70	5772	63	18197	241	6558	62	23926	267	17038	238

Source: Same as Table 1.

Additional Employment Data . . .

Figure 1
Percent Distribution of Civilian Employment, by Sex, U.S. and Kentucky, 1986 Annual Averages



Source: *Geographic Profile of Employment and Unemployment, 1986*, U.S. Department of Labor, May 1987.

Table 4
Civilian Unemployment Rate, by Occupation, Kentucky and Southern Region, 1986 Annual Averages

	Kentucky	Southern Region
	(thousands)	
Managerial & Professional	2.6%	2.4%
Technical, Sales, & Admin. Support	5.0	5.1
Services	13.2	11.0
Precision Production, Craft & Repair	12.3	7.6
Operators, Fabricators & Laborers	10.5	12.3
Farming, Forestry & Fishing	9.0	8.2
Total	8.2%	7.6%

Source: Same as Figure 1.

Table 5
Percent Distribution of Employed Civilians, by Sex and Race, Kentucky and Southern Region, 1986 Annual Averages

	Managerial & Professional	Technical, Sales & Administrative Support	Services	Precision Production, Craft & Repair	Operators Fabricators & Laborers	Farming, Forestry & Fishing
Kentucky						
Total	19.6%	26.0%	14.5%	12.6%	20.1%	5.3%
Men	18.4	17.8	8.7	20.0	26.9	8.0
Women	20.9	42.0	22.6	2.4	10.7	1.5
White	21.2	28.2	13.5	12.6	20.3	5.3
Black	10.1	25.3	31.6	12.4	16.2	4.2
Southern Region						
Total	22.7%	31.3%	13.1%	13.1%	16.8%	3.1%
Men	22.7	19.9	8.7	21.7	22.3	4.8
Women	22.6	45.5	18.5	2.4	10.0	1.0
White	24.6	33.0	10.9	13.7	14.6	3.1
Black	12.5	23.3	23.5	10.0	27.5	3.2
Hispanic	14.2	28.2	17.2	15.2	20.1	5.1

Source: Same as Figure 1.

selected indicators of ECONOMIC ACTIVITY

These tables of selected indicators of economic activity were prepared using data maintained through the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

	Jan. 1987	Feb. 1987	March 1987	Quarter I 1987	% Change From Previous Quarter	% Change From Previous Year	Jan. 1987	Feb. 1987	March 1987	Quarter I 1987	% Change From Previous Quarter	% Change From Previous Year
	KENTUCKY						UNITED STATES					
EMPLOYMENT												
Civilian Labor Force (SA) (thousands)												
Total	1692.8	1698.3	1698.9	1696.7	0.2	−0.8	119034.0	119349.0	119222.0	119201.7	0.5	1.9
Employed	1542.2	1537.9	1523.4	1534.5	−0.8	0.6	111011.0	111382.0	111368.0	111253.7	0.8	2.3
Agriculture	63.5	63.3	63.2	63.3	−0.9	−2.3	3145.0	3236.0	3284.0	3221.7	1.3	0.3
Nonagriculture	1478.7	1474.6	1460.3	1471.2	−0.8	0.7	107866.0	108146.0	108084.0	108032.0	0.7	2.4
Unemployed	158.2	164.3	171.3	164.6	14.3	2.8	8023.0	7967.0	7854.0	7948.0	−2.3	−3.7
Civilian Unemployment Rate (SA)	9.3	9.8	10.1	9.7	14.5	1.4	6.7	6.7	6.6	6.7	−1.9	−6.1
Nonagricultural Wage and Salary Employment (SA) (thousands)[1]												
Total	1300.9	1305.4	1304.0	1303.5	1.2	3.1	100919.0	101150.0	101329.0	101132.7	0.7	1.7
Goods-Producing	364.2	363.1	363.5	363.6	2.2	2.7	24708.0	24743.0	24749.0	24733.3	0.4	−1.2
Manufacturing	257.4	256.4	257.5	257.1	1.3	1.7	18956.0	18986.0	18995.0	18979.0	0.1	−0.6
Services-Producing	940.1	944.4	943.6	942.7	0.6	3.3	76211.0	76407.0	76580.0	76399.3	0.8	2.7
PRODUCTIVITY												
Average Weekly Earnings of Production Workers[2]												
Manufacturing	388.6	395.4	397.6	393.9	−1.6	5.4	401.8	405.2	402.6	403.2	1.2	2.3
Mining (Bituminous Coal and Lignite)	450.4	468.0	464.6	461.0	1.1	−1.6	542.3	534.2	528.8	535.1	1.1	1.1
Average Weekly Hours of Production Works												
Manufacturing	39.9	39.9	40.0	39.9	0.0	3.2	41.0	41.3	41.0	41.1	0.7	1.0
Mining (Bituminous Coal and Lignite)	27.6	28.8	28.4	28.3	2.8	−2.5	42.8	42.4	42.1	42.4	0.8	−1.3
HOUSING[3]												
Total Units (thousands)	1.3	1.1	1.7	4.1	32.2	86.3	98.2	100.5	152.1	350.8	− 9.1	− 7.5
Valuation (millions $)	59.1	42.4	76.7	178.3	19.1	60.3	5688.0	5970.0	9168.0	20826.6	− 4.3	10.0
Single-Family Units (thousands)	0.5	0.5	0.9	1.9	19.0	26.9	61.8	69.0	103.0	233.8	0.8	8.4
Valuation (millions $)	32.3	33.2	60.4	125.9	17.4	46.0	4339.0	4857.0	7423.0	16619.0	1.7	22.2
Multi-Family Units (thousands)	0.8	0.5	0.8	2.2	37.1	213.4	36.4	31.5	49.1	117.0	−24.1	−28.4
Valuation (millions $)	26.8	9.2	16.4	52.4	3.9	165.9	1349.0	1113.0	1745.0	4207.0	−22.2	−21.1
COAL MINING[4]												
Coal Production (millions of tons)												
Total	12.5	12.4	13.6	38.5	1.1	−1.3	72.5	69.8	73.8	216.2	−0.3	−5.7
Eastern Kentucky	9.3	9.2	10.1	28.6	0.9	−0.9	--	--	--	--	--	--
Western Kentucky	3.2	3.2	3.5	9.9	0.6	−2.4	--	--	--	--	--	--
CAR SALES												
New Passenger Car Registrations (thousands)[5]	6.5	6.4	8.8	21.7	−14.6	−21.1	800.1	670.9	829.4	2300.4	NA	−10.9

	Jan. 1987	Feb. 1987	March 1987	Quarter I 1987	% Change From Previous Quarter	% Change From Previous Year
	UNITED STATES					
PRICES						
Consumer Price Indexes (1967 = 100)						
All Items	333.1	334.4	335.9	334.5	1.08	2.19
Food and Beverages	320.5	321.6	321.6	321.2	1.56	4.36
Medical Care	449.6	452.4	455.0	452.3	1.74	7.16
Energy	352.2	359.2	360.0	357.1	3.76	−11.81
Producer Price Indexes (1967 = 100)						
All Commodities	300.9	302.2	302.8	302.0	1.16	−0.83
All Finished Goods	291.8	292.3	292.3	292.1	0.53	−0.05
Intermediate Materials	307.0	308.9	309.4	308.4	1.16	−1.63
Crude Materials	284.2	287.2	287.7	286.4	3.08	−1.39
All Construction Materials	309.9	310.8	311.3	310.7	0.34	1.03

	Quarter III 1986	Quarter IV 1986	Quarter I 1987	% Change From Previous Quarter	% Change From Previous Year
	UNITED STATES				
PERSONAL INCOME (SAAR) (billion $)	3498.8	3527.9	3585.3	1.60	4.45
FOREIGN TRADE (billion $)					
Exports	49.6	54.3	54.2	− 0.17	4.16
Agriculture	5.5	7.5	6.8	−10.46	−7.84
Imports	92.3	94.0	93.0	− 1.11	−0.11
Balance	−42.7	−39.7	−38.8	− 2.42	−5.05
MISCELLANEOUS					
Gross National Product (SA) (billion $)	4265.9	4288.1	4377.7	2.05	4.87
Gross National Product (SA) (billion 1982$)	3718.0	3731.5	3772.2	1.08	1.98
Composite Index of 12 Leading Indicators (1967 = 100)	180.1	183.6	186.4	1.50	6.39
Index of Industrial Production (SA) (1977 = 100)	125.0	126.0	127.0	0.79	1.60
Average Prime Rate Charged by Banks on Short-Term Business Notes	7.9	7.5	7.5	0.00	−19.96
Interest Rate on 3-month Treasury Bills	5.5	5.3	5.5	3.44	−20.20

	Quarter III 1986	Quarter IV 1986	Quarter I 1987	% Change From Previous Quarter	% Change From Previous Year
	KENTUCKY				
PERSONAL INCOME (SAAR) (million $)	41720.0	41813.0	42366.0	1.31	3.21
STATE GOVERNMENT RECEIPTS (million $)					
General Fund	628.5	773.3	693.4	*	3.53
State Road Fund	134.3	149.1	170.3	*	61.81

NOTES

SA = Seasonally adjusted

NA = Not available

* = Quarter to quarter comparisons are not meaningful due to seasonal variation.

% Change From Previous Year = The percent difference between the current quarter and the same quarter in the previous year.

[1]Nonagricultural Wage and Salary Employment differs from the Employed Civilian Labor Force by the number of persons defined as self-employed.

[2]Average hourly earnings can be calculated by dividing average weekly hours into average weekly earnings.

[3]The housing figures describe private structures for which a construction permit has been authorized.

[4]Mining figures describe production of bituminous coal and lignite.

[5]New passenger car registration data are obtained from R.L. Polk & Company.

Research Release

Women and Poverty in Kentucky

Table 1
Poverty Rates by Age, Sex and Race: Kentucky and the United States, 1979

	Kentucky	United States	U.S. – KY Differences
All Persons	17.6%	12 4%	5.2%
Male	16.2	10.9	5.3
Female	18.9	13.8	5.1
Female-Male Difference	2.7	2.9	
Persons Age 65+	23.3	14.8	8.5
Male	19.4	10.8	8.6
Female	26.1	17.6	8.5
Female-Male Difference	6.7	6.8	
Black Persons	33.0	29.9	3.1
Male	29.7	26.8	2.9
Female	35.9	32.5	3.4
Female-Male Difference	6.2	5.7	
White Persons	16.4	9.4	7.0
Male	15.2	8.2	7.0
Female	17.6	10.6	7.0
Female-Male Difference	2.4	2.4	

Source: U.S. Bureau of the Census, *1980 Census of Population.*

Women and Poverty in Kentucky is the title of a new report on research conducted by Carol M. Straus and Lucinda R. Zoe of the Center for Business and Economic Research under contract with the Kentucky Commission on Women. The report addresses economic factors that contribute to high poverty rates for women, examines the incidence and distribution of poverty among women in Kentucky and in different regions of the state, and outlines legislative and policy options for responding to the economic problems of women.

Poverty is widespread in Kentucky, and there are very few groups or areas with low poverty rates. Rates are highest for women who are divorced or widowed, elderly, black, uneducated or heading families. In Kentucky, there are also many poor women who do not fit into these "high poverty" groups, including married women, white women, and educated women.

Table 1, taken from the report, shows that overall poverty rates are higher for women than for men, and higher for Kentucky than for the United States in all groups.

To inquire about the availability of the completed report, contact the Kentucky Commission of Women at (502) 564-6643.

—Carol M. Straus
Senior Research Associate

News & Notes

Review & Perspective will now be published in two different formats, alternating quarterly throughout the year. In addition to the regular format composed primarily of analytical articles, a Statistical Supplement edition will be published on alternate quarters. The Statistical Supplements will provide more detailed data for selected indicators of economic activity. This issue is the first Statistical Supplement issue and focuses on employment data. Monthly data for May 1986 to April 1987 is provided for both the U.S. and Kentucky, with sectoral breakdowns included. In addition, breakdowns of employment by sex and race are given for Kentucky and the Southern region.

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New and revised annual and quarterly personal income estimates have been released by the Bureau of Economic Analysis, U.S. Department of Commerce. Quarterly estimates are now available through the first quarter of 1987 (Q1'87). With the release of state quarterly estimates for Q1'87, BEA released revised estimates for some quarters as far back as 1980. State personal income estimates now incorporate the results of a 1985 comprehensive revision for Q1'69 forward. BEA recommends discarding old versions of state quarterly personal income data and using only data from the latest release made in July 1987. For more information about the revisions, see the August 1986 *Survey of Current Business*, published by BEA.

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Two final reports were recently released based on research completed by the Center for Business and Economic Research (CBER). *Education and Economic Development*, prepared by Merl Hackbart, Gurcharan Laumas, Beth Smith and Yee Ling Mui, offers an overview of education policy in the United States, a discussion of the relationship between education and economic growth and estimates of future employment/educational attainment needs. Particular focus is given to Kentucky and the importance of education in meeting economic shifts.

Background Studies for Coal Summit II presents a set of studies prepared by various individuals associated with CBER, for the Kentucky Energy Cabinet. The report provides the results of research on the status and outlook for the coal industry and on the structure interlocks and policy/interest groups affecting the energy domain and, more specifically, the coal sector.

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The Governor's Office of Policy and Management has awarded CBER $50,000 to continue research on the Economic Impact of Toyota on the state's economy. The purpose of the study is to explore the past, present, and future trends in the automotive supply industry to determine the extent to which the new supplier network enhances the economic welfare of the state of Kentucky.

Principal investigators Roger Calantone and H. Brinton Milward, along with their research teams, will do a profile of the automotive suppliers in the United States and Kentucky to determine what trends were in the industry prior to Toyota's arrival in the state and how the trends have changed due to Toyota's construction.

—jbs

INFORUM

Three percent of Americans are employed in farming; children under 18 years old make up 27% of the U.S. population; eighty percent of new apartments completed in 1981 were absorbed within 3 months, but by 1986 the 3-month absorption rate dropped to 66 percent. Statistics—Data—Always a need and often a chore to locate. Statistical information sources are a necessity for analyzing market potentials, locating production and service facilities, doing research, and conducting daily business transactions. How do you find the data products you need in a form you can use? The U.S. Bureau of the Census is a good place to begin.

The Census Bureau just issued its 1987 *Census Catalog and Guide* with over 3,000 sources of assistance on every data product the Census Bureau has issued from 1980-1986, complete with a Federal network of addresses and phone numbers of other agencies that produce statistics. From floppy discs to printed reports, from microfiche to online access and magnetic tapes, the new guide offers in-depth descriptions on data, including time span, geographic areas, and a subject index for easy access to the data you need. The new guide is available for $21 from the U.S. Government Printing Office, or the Census Bureau's Data User Services Division at (301) 763-1584.

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Do you need information on *Understanding and Using Foreign Trade and Manufacturing Statistics*? The Census Bureau is offering a workshop, November 18-19, in New Orleans, Louisiana, for those who need data on what's manufactured in the United States, what's exported and what's imported, value of shipments, capital expenditures, and more. The workshop provides hands-on exercises and case studies to aid you in locating and using foreign trade and manufacturing data. For more information, contact Dorothy Chin at the Census Bureau, (301) 763-1510.

A new Productivity Index is available from the Bureau of Labor Statistics, in *Productivity Measures for Selected Industries, 1958-1985*. This publication updates indexes of output per employee hour and output per employee for the industries included in the productivity measurement program of the federal government. Productivity gains were seen in 1985 in the motor vehicle industries, steel, construction and paper, to name a few, while declines were noted in such industries as farm and garden machinery, footware, and tires and inner tubes. Cost is $14. For ordering information, contact the Bureau of Labor Statistics at (202) 523-9244.

The Center for Business and Economic Research has produced one-page chapter summaries of the *Kentucky Annual Economic Report for 1986*. Eac' page covers, in an abbreviated form, an analys.. of Kentucky's economic and financial characteristics. Summaries are available for the coal industry, debt statistics and expenditures of state and local governments, the labor force, federal aid, trends in state government financing, the goods- and services-producing industries, revenue of state and local government, transportation finance, the agriculture and construction industries, employment, personal income, and population. The full report is still available for $15. For information on the full report or the summaries, contact the Center for Business and Economic Research at (606) 257-7675.

—Lucinda R. Zoe
Research/Information Specialist

Review & Perspective
Center for Business & Economic Research
301 Mathews Building
University of Kentucky
Lexington, Kentucky 40506-0047

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